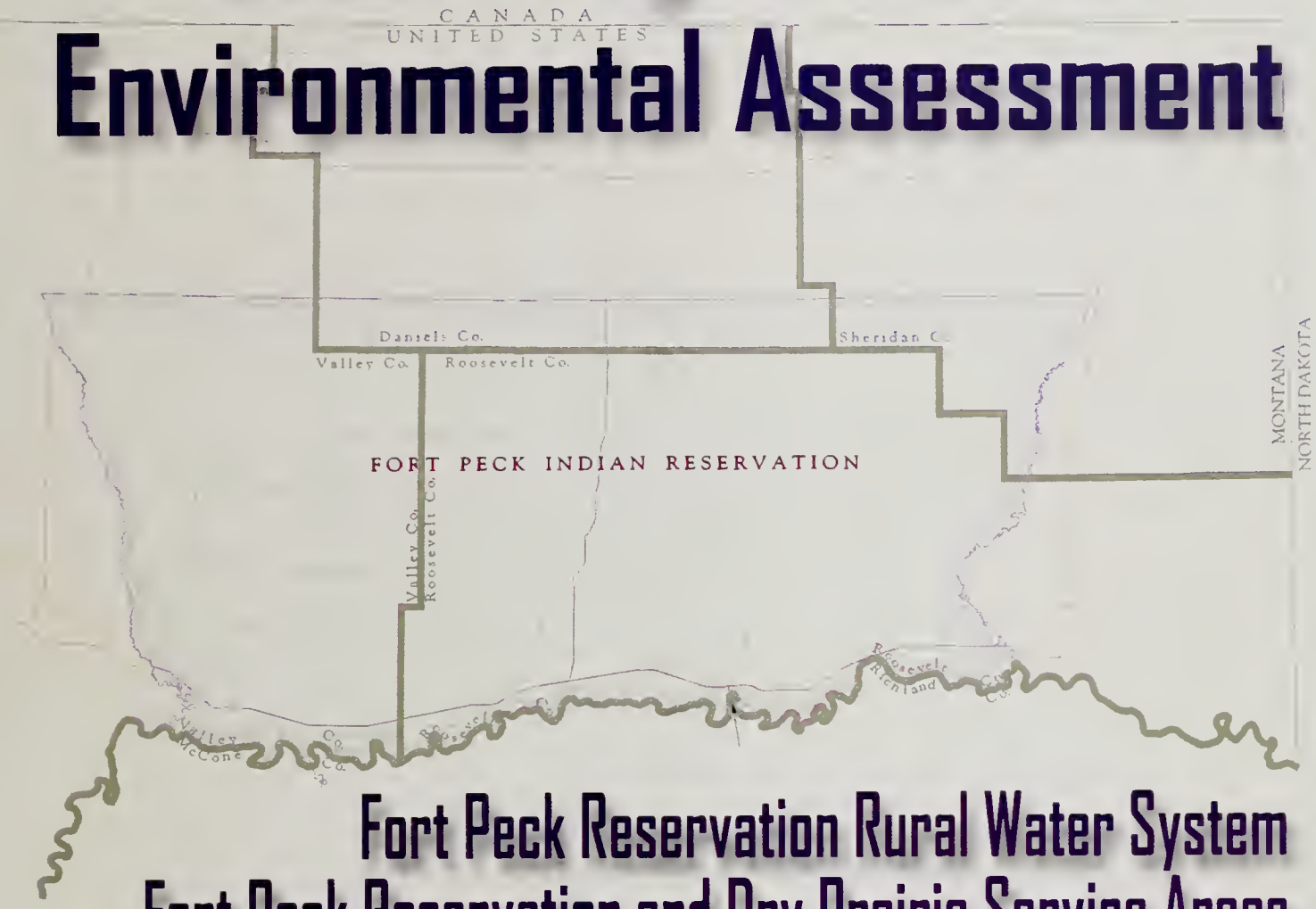
# Draft Programmatic Environmental Assessment




## Fort Peck Reservation Rural Water System
## Fort Peck Reservation and Dry Prairie Service Areas



Department of Interior, Bureau of Reclamation
Montana Department of Natural Resources and Conservation

May 2002

JOE C. ELLIOTT Ph.D.
ECOLOGICAL CONSULTANT
3918 Lincoln Road
Missoula, Montana 59802
406- 542-5014

Dear Reviewer:

Enclosed is a copy of the Draft Environmental Assessment (EA) for the Fort Peck Reservation Rural Water System that is proposed for development in northeastern Montana. This Draft EA has been prepared in compliance with National Environmental Policy Act (NEPA). If you have comments or questions concerning the Draft EA, please send them in writing, by May 31, 2002 to:

Rick Blaskovich
Bureau of Reclamation
2900 4th Ave. North, Suite 501
P.O. Box 30137
Billings, MT 59107-0137

or

Joe C. Elliott
Ecological Consultant
3918 Lincoln Road
Missoula, MT 59802

After receipt, comments will be addressed and incorporated into the final EA that will be completed by June 15, 2002. If there are no significant impacts expected as a result of the analysis in this EA, the Bureau of Reclamation will prepare a Finding of No Significant Impact (FONSI) by July 1, 2002 and the project will proceed. Thank you for your participation in this review.

Sincerely,

Joe C. Ellliott

## TABLE OF CONTENTS

## TABLE OF CONTENTS (continued)

## TABLE OF CONTENTS (continued)



## LIST OF TABLES



## LIST OF FIGURES



## LIST OF APPENDICES

# SUMMARY

This environmental assessment (EA) discloses the effects of construction of the Fort Peck Reservation Rural Water System (FPRRWS), a municipal, rural, and industrial project in four counties of northeastern Montana. The proposed project would provide an adequate supply of good-quality water for domestic and industrial use and for livestock water in the Fort Peck Reservation and Dry Prairie service areas. The proposed project would consist of a water withdrawal intake and treatment plant near the community of Poplar, pumping stations, pipelines, storage tanks, power lines, and other ancillary facilities. The proposed project would serve a future population of about 30,000 people with water being pumped from the Missouri River. Major Features of the project are presented in **Summary Table.**

This EA is a programmatic document because some pipeline alignments and other project components have not been finalized. Additional compliance with the National Environmental Policy Act (NEPA) may be required and would tier to this EA.

The proposed project would not be likely to adversely affect threatened and endangered species (i.e., pallid sturgeon, bald eagle, piping plover, least tern and whooping crane) or critical habitat. Consultation with the U.S. Fish and Wildlife Service (USFWS) was conducted under Section 7 of the Endangered Species Act and there was concurrence that the project would not be likely to adversely affect federally listed species with implementation of avoidance, mitigation, and monitoring.

Viability of populations of species of special concern (both plants and animals) would not be jeopardized by the proposed action. Areas of important habitat would be avoided or construction would be timed to avoid sensitive life-history stages of species of special concern.

Losses of larval fish and eggs as a result of entrainment at the water intake would have a negligible effect on fish populations in the Missouri River. Average annual discharge of the Missouri River in the project area is about 6.5 million acre-feet per year. The FPRRWS would use about 6,202 acre-feet per year, about 0.09 percent of the annual Missouri River discharge.

Adverse effects from the proposed project would be avoided or mitigated and would be negligible for resources in the project area. Environmental commitments that will be implemented to avoid or mitigate potential adverse effects of construction and operation of the project are presented in this EA. Measures include those recommended in the Fish and Wildlife Coordination Act Report prepared by the USFWS.

Where practicable, wetlands would be avoided; however, short-term losses in wetland functions and values would occur in the project area during and shortly after construction primarily as a result of construction of the pipeline distribution system. Replacement of topsoil and reseeding with native species would restore affected wetlands over the short term. Additional wetlands mitigation would be developed to compensate for wetlands that do not respond adequately to topsoil replacement and seeding.

Degradation of water quality from sediment generated during construction would have a negligible effect on the aquatic biota. Prairie streams in the project area typically have high levels of suspended and deposited sediment to which native fishes have adapted. Timing construction to take place during low-flow periods would minimize the downstream transport of sediment and would avoid sensitive spawning periods for fish.

Pipeline installation on prime farmland soils could cause short-term soil erosion and compaction during construction. These effects would be short term and eliminated by cultivation and natural freeze-thaw cycles. Because pipeline depth would be approximately seven feet, prime farmland soils could continue to be farmed without affecting their prime farmland status. The presence of pipelines would not affect the designation of prime farmlands.

Native prairie would be disturbed as a result of construction of the distribution pipelines,

| SUMMARY TABLE<br>Major Features of the Fort Peck Reservation Rural Water System | | |
|---|---|---|
| Project Features | Fort Peck Reservation Service Area | Dry Prairie Service Area |
| Size of project area | 3,200 square miles | 4,600 square miles |
| Projected population to be served | 16,995 | 10,439 |
| Miles (acres )of pipeline | 1,370 (4,151 acres) | 1,820 (5,515 acres) |
| Miles (acres) of pipeline over 6 inches diameter | 121 (367 acres) | 144 (436 acres) |
| Number of primary pumping stations | 7 | 13 |
| Construction costs | $124.6 million | 67.3 million |
| Annual operation and maintenance costs | $2.00 million | $1.55 million |
| Average water consumption | 2.76 million gal./day | 2.34 million gal./day |
| Known archaeological sites | 360 | 210 |
| Wetlands crossed by project | 18.5 acres | 16.7 acres |
| Perennial streams crossings | 15 | 11 |
| Federal land crossed by project | 0 miles | 40 miles (121acres) |
| State land crossed by project | 0 miles | 70 miles (212 acres) |
| Native prairie crossed by project | 411 miles (1245 acres) | 546 miles (1654 acres) |
| T/E species adversely affected | None | None |
| Prime farmland affected | 17 miles (52 acres) | 23 miles (70 acres) |
| Allotted and trust lands crossed | 610 miles (1848 acres) | 0 miles |
| Temporary lodging available | 235 units | 878 units |
| Mitigation/reclamation costs | $8.02 million | $4.36 million |

* Although the construction right-of-way width would vary, depending on pipe diameter, acreage in this table was calculated assuming an average construction right-of-way width of 25 feet.

pumping stations, and water storage tanks. Disturbance of native prairie would increase the potential for proliferation of noxious weeds. Control of noxious weeds will be addressed in noxious weed plans that would be submitted to each county weed district prior to construction. Replacement of topsoil in the sequence in which it was removed and seeding in fall following construction with native species would reduce the potential for noxious weeds and reestablish native plant communities.

Site-specific cultural resources surveys would be conducted for all parts of the project where construction activities would pose a risk to historic and prehistoric resources. Cultural resources would be avoided if possible. Cultural resources that cannot be avoided will be dealt with following conditions specified in the programmatic agreement between the Bureau of Reclamation (BOR), the Fort Peck Tribes, the Dry Prairie Rural Water Authority, and the State Historic Preservation Officer (SHPO).

Site-specific, Class III cultural resources studies have not been completed for most the project area. Prior to construction, a BOR archaeologist or an archaeologist approved by BOR would determine areas where Class III surveys are required.

During periods of high demand (e.g., peak tourist season and hunting season) there could be competition for available lodging (e.g., motels/hotels, rooms, and RV spaces) among construction workers on the FPRRWS project and other temporary visitors to the project area. Temporary lodging limitations in some parts of the project area (e.g, Opheim, Scobey, and the Reservation) could require workers and others seeking lodging to drive longer distances for lodging. Workers would likely find local rooms or camp in RV's at designated sites, on public lands, or on private lands.

The proposed project would not adversely affect Indian Trust Assets or raise issues with environmental justice. Social and economic conditions on the Fort Peck Reservation would improve with a reliable supply of good-quality water.

This EA has determined that the proposed action or alternatives, with mitigation and avoidance measures, would not significantly affect the quality of the physical, natural, and human environments; therefore, an environmental impact statement is not required to satisfy the requirements of NEPA. Although an environmental impact statement will not be prepared, the project sponsors will continue to work with state and federal regulatory agencies to secure the necessary permits for construction and operation of the proposed project.

# 1.0 INTRODUCTION

The Fort Peck Reservation Rural Water System (FPRRWS), a municipal, rural, and industrial (MR&I) project, is proposed to serve the Fort Peck Indian Reservation (Reservation) in northeastern Montana and adjacent Dry Prairie service area (**Figure 1**). The project would not provide irrigation water for crops. This environmental assessment (EA), prepared according to requirements of the National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA), analyzes potential and anticipated impacts to the environment from constructing and operating the project.

The Department of the Interior, Bureau of Reclamation (BOR) is the lead federal agency responsible for overseeing compliance with NEPA. The Montana Department of Natural Resources and Conservation (DNRC) is a cooperating agency responsible for overseeing compliance with MEPA.

The Bureau of Indian Affairs (BIA) is also a cooperating federal agency in preparation of this EA. The BIA would use this EA to satisfy NEPA compliance regarding leases, easements, rights-of-way, and permits that the BIA may approve regarding Indian trust land. The BIA could adopt this EA or tier to its analysis to meet requirements of future proposed actions.

The BOR, BIA, and DNRC will determine if the proposed project has the potential for significant effects on the quality of the human environment. If it is determined that the proposed project would not significantly affect the quality of the human environment, a Finding of No Significant Impact (FONSI) will be prepared by BOR. If significant impacts are determined to be likely in this EA, the environmental review process could be expanded and an environmental impact statement would be prepared.

This EA is a programmatic document because some pipeline alignments and other project components have not been finalized. Therefore, comprehensive site-specific inventories were, impractical for the entire project area. Additional NEPA documents may be required that would tier to this EA. An example of additional NEPA compliance that may be required is acquisition of easements to cross lands managed or under easement to the U.S. Fish and Wildlife Service. Site-specific analysis of lands that would be affected is required for easements granted by the U.S. Fish and Wildlife Service. Additional compliance with MEPA would also be required for construction across state lands. After submittal of an Application for Right-of-Way Easement, the DNRC is required to prepare environmental assessments for parcels of state land that would be affected by construction.

The Fort Peck Assiniboine and Sioux Tribes (Tribes) and Dry Prairie Rural Water Authority (Dry Prairie), through cooperative agreements with the BOR are conducting planning, design, and environmental analysis for the proposed project. The Tribes and Dry Prairie will consult and coordinate with the lead federal agency, state agencies, and other entities involved with administrative and regulatory aspects of the proposed FPRRWS project.

## PURPOSE

The purpose of this project is to provide a dependable supply of good-quality water for domestic and livestock consumption, garden-scale irrigation, and industrial use in northeastern Montana through implementation of the Fort Peck Rural Water System Act of 2000 (P.L. 106-382). The FPRRWS would draw water from the Missouri River to serve a 7,800-square-mile region in northeastern Montana in need of a sufficient supply of good-quality water for domestic and livestock consumption, and industrial utilization. The project is not intended to provide irrigation water for agriculture or for fire suppression. The project area includes private land; land administered by state and federal agencies; Indian trust land; and tribally owned land, in Valley Daniels, Sheridan, and Roosevelt counties.

## NEED FOR THE PROJECT

Currently, individuals and communities in the Fort Peck Reservation and Dry Prairie service areas get most of their domestic water from wells or from the Missouri River. Some residents purchase bottled water. Well yields

are low and uncertain and intensive treatment is required to make water suitable for human consumption.

The Missouri River provides water for the communities of Culbertson, Glasgow, and St. Marie. Glasgow and St. Marie rely on a system owned and operated by Boeing Company that draws water from the dredge ponds immediately downstream from Fort Peck Reservoir. The Fort Peck Rural County Water District also draws water from dredge ponds to provide municipal water for the community of Fort Peck and a surrounding 50-square mile service area. All other communities in the Fort Peck Reservation and Dry Prairie service areas rely on groundwater.

Groundwater sources generally produce small quantities of water relative to the demand and water quality is uniformly poor. Dissolved solids range from 748 mg/l (Brockton) to 2,332 mg/l (Fort Kipp), and sulfates range as high as 1,120mg/l (Fort Kipp). These levels of dissolved materials exceed the limits for drinking water set by Environmental Protection Agency (EPA). In addition, concentrations of iron and manganese at many locations also exceed drinking water standards. Extensive treatment of groundwater is necessary, including iron and manganese removal, ion exchange, and reverse osmosis. Water supplies for livestock are sufficiently high in minerals to adversely affect the livestock industry, the primary source of income and employment over much of the project area.

The most abundant source of groundwater in the region is the Flaxville gravels. Although this aquifer would provide adequate groundwater for parts of the project area, as many as 80 percent of wells drilled into this aquifer have nitrate levels exceeding the maximum allowable limit in drinking water. Nitrates can be removed from drinking water by reverse osmosis or distillation, but this is costly and is not considered an alternative to the proposed project.

## BACKGROUND

An adequate supply of good-quality drinking water has historically been a problem in northeastern Montana. In 1992, the Fort Peck Assiniboine and Sioux Tribes began work to establish a water supply project for the Reservation. When plans for the proposed water development project were presented to the Montana Congressional delegation for federal funding, they suggested the project area be expanded to include areas outside of the Reservation that are also experiencing similar water quality problems.

In 1997, a steering committee, consisting of a county commissioner, a conservation district member, and one member at large was formed for the off-Reservation part of the project. In 1998, an association of conservation districts was formed to administer the off-Reservation part of the project now called Dry Prairie Rural Water. With passage of two state laws (1999 legislature) that created a funding mechanism for regional water systems (SB 220) and the creation of water authorities (SB 302), the off-Reservation part of the project became the Dry Prairie Rural Water Authority.

## FORT PECK RURAL WATER SYSTEM ACT OF 2000

Congress authorized and provided planning appropriations for the proposed FPRRWS project on October 27, 2000 through the Fort Peck Rural Water System Act of 2000 (PL 106-382, 114 Stat. 1451). Congress appropriated $175 million for the project, with $124 million for the Fort Peck Reservation service area and $51 million for the Dry Prairie service area. In addition to federal funding, the State of Montana and the Dry Prairie water users will each provide an additional $8.475 million for the Dry Prairie service area for a total proposed budget of $192.1 million. Construction is proposed to begin in 2002 and extend through 2011.

## CONTAMINANT SURVEY

Department of Interior (DOI) policy requires that contaminant surveys be conducted for land transfers that occur between the DOI and non-DOI entities. Transfers that involve acquisition of land or buildings are surveyed for contamination to ensure that DOI does not acquire land with hazardous materials liabilities. Possible land acquisitions for the FPRRWS project could include locations for the water treatment plant, pumping stations, storage tanks. Forms for conducting contaminant surveys are included in **Appendix A.**

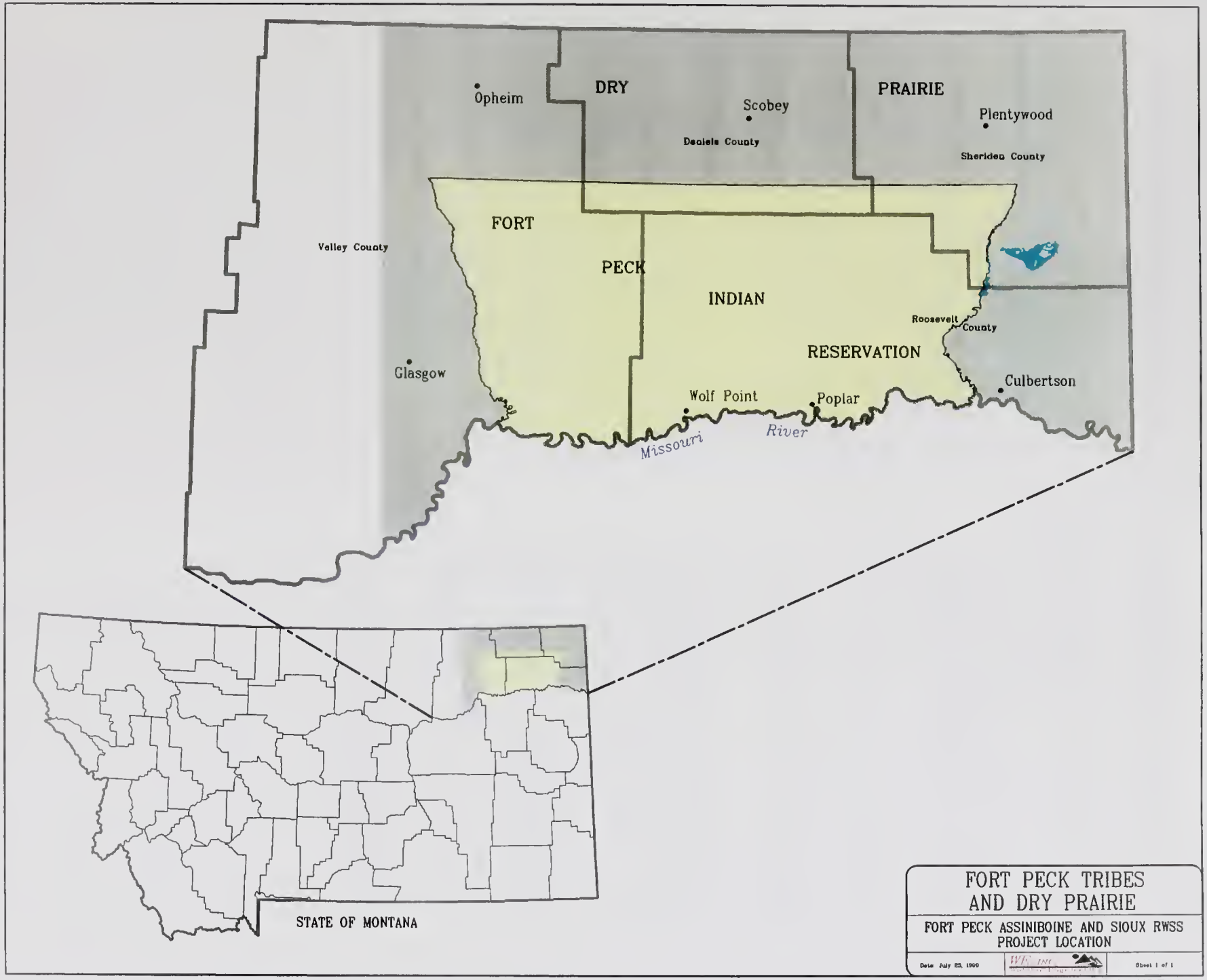

Opheim
DRY
Scobey
Daniels County
PRAIRIE
Plentywood
Sheridan County
Valley County
FORT
PECK
INDIAN
RESERVATION
Roosevelt
County
Glasgow
Wolf Point
Poplar
Culbertson
Missouri
River
STATE OF MONTANA
FORT PECK TRIBES
AND DRY PRAIRIE
FORT PECK ASSINIBOINE AND SIOUX RWSS
PROJECT LOCATION
Date: July 23, 1999
Sheet 1 of 1

FIGURE 1

## ISSUES DISCUSSED IN THIS EA

Issues discussed in this EA were identified from comments submitted by state and federal agencies and the public. The following are potential project-related effects examined in this document.

- Effects on threatened and endangered species, critical habitat, and species of special concern such, as the pallid sturgeon, bald eagle, piping plover, and least tern.
- Effects on migratory birds
- Effects on native prairie vegetation and associated wildlife.
- Effects on wetlands and waters of the United States.
- Effects on soils and prime farmlands.
- Effects on cultural, historical, and archaeological resources.
- Effects on the local economy and government services.
- Effects on land use and development.
- Effects on noxious weed infestations.
- Effects on fisheries.
- Effects on wildlife.
- Effects on human health and quality of life.
- Cumulative effects.
- Mitigation requirements.
- Monitoring and environmental compliance.

## ASSUMPTIONS OF ANALYSIS

Analysis and conclusions regarding potential effects that could or would result from the proposed FPRRWS project are based on the following assumptions:

- Project sponsors would obtain necessary easements, permits and licenses for construction and operation of the project in the Fort Peck Reservation and Dry Prairie service areas.
- Private land owners will donate easements for the project.
- Environmental commitments to avoid, minimize, compensate, and monitor for lost or degraded resource values would be implemented.
- An interdisciplinary team consisting of resource specialists representing state and federal agencies and project sponsors would monitor the project to ensure that environmental commitments are implemented and effective.
- Acreage estimates associated with the project pipeline system are based on an average pipeline right-of-way width 25 feet.
- Ninety percent of project construction workers would be from the project-area, four-county labor force.
- If the Proposed Action were not implemented, individuals and communities would continue to seek good-quality water from wells and the Missouri River.

# 2.0 ALTERNATIVES

## DEVELOPMENT OF ALTERNATIVES

Various alternatives to fulfill the purpose and need for the proposed FPRRWS were considered and analyzed, but none were determined less damaging to the environment or to provide greater benefits for fewer costs than the proposed action. Alternatives such as hauling water and drilling wells to obtain groundwater were rejected because they would not meet the purpose and need of the project. Therefore, all alternatives but the Proposed Action and No Action were considered but rejected.

## ALTERNATIVES CONSIDERED BUT REJECTED

The following engineering modifications were analyzed as alternative methods for meeting the purpose and need of the FPRRWS. They do not represent alternatives to the proposed action (e.g., hauling water or drilling new wells) and could not be implemented in the absence of the FPRRWS.

### Intake at Fort Peck Reservoir or Nashua

Although the Reservoir is at a higher elevation than the project area (thus reducing pumping costs), the distance over which water would be pumped is substantially longer. Ninety percent of water needs for the project would be pumped from Nashua or Fort Peck, with 10 percent going directly to Glasgow. Because of the increased pipeline length, size, and volume of water, taking water from the vicinity of Fort Peck Reservoir would cost more, use more energy, and have more environmental effects because of longer large-diameter pipelines. Pumping costs from an intake at Fort Peck Reservoir or Nashua would be higher than for an intake at Poplar or some other central location. An intake at Fort Peck Reservoir or Nashua would be about $10 million more than an intake at Poplar because of higher pipe and pumping costs.

### Infiltration Gallery on Missouri River

An infiltration gallery was considered to address fish entrainment concerns. Rather than diverting water from the river channel, an infiltration gallery would divert water from shallow groundwater flowing along the bed of the river. An infiltration gallery is a network of perforated pipe laid horizontally and packed in gravel, below the riverbed. Water would infiltrate downward from the river by gravity, through the packed gravel, and into the perforated pipe. To construct an infiltration gallery, a portion of riverbed would have to be temporarily dewatered.

An infiltration gallery intake was considered but rejected because of problems with maintenance and other factors. An infiltration gallery would become clogged and not transmit sufficient amounts of water without frequent maintenance because of high sediment loads in the Missouri River. An infiltration gallery would also draw water from the alluvium of the Missouri River. Water quality of alluvial groundwater in the Missouri River, generally, is not as good as surface water. There would be no cost savings if an infiltration gallery were used as a water intake.

### "Looping" the Core Pipelines

Concerns were raised over the efficiency of disinfection of water due to the long residence time in some segments of the pipeline system. The alternative of "looping" the pipeline was considered but rejected because of cost and limited potential to improve residence time of disinfectants in pipelines. Long residence time of water in pipelines is not desirable because levels of disinfectant are depleted when water remains in the pipe for extended periods. Looping would involve constructing the pipeline so that water would not remain in the pipeline for extended periods of time. Looping would require increased pipe diameters and more pumping capacity, which would substantially increase costs. It is unlikely that looping would reduce formation of biofilms in pipes because

residence time in smaller pipes that are looped would be comparable to residence time in smaller unlooped lines. Rather than looping pipeline segments, flushing valves would be used at dead ends in pipelines. Flushing valves would accomplish the same purpose (i.e., reduce the potential for biofilm formation) as looping pipeline segments. Addition of the disinfectant chloramine would enhance disinfection in the pipeline system where water has a long residence time.

### Gravity Water Intake

To save costs associated with pumping water from the wet well at the project intake to the water treatment plant, a gravity water intake was analyzed. With a gravity intake, water would be diverted from an intake near Wolf Point and conducted in a 20-mile open ditch to the water treatment plant near Poplar.

This alternative was rejected because of higher construction, operation, and maintenance costs, reliability concerns, and environmental mitigation costs. The risk of flow disruption due to freezing in winter and Missouri River flooding were considered unacceptably high.

## NO ACTION

NEPA requires that the proposed action and other reasonable alternatives be compared to the future without the project, or no action, to determine the effects of project construction and operation. Under this alternative, the project sponsors would not receive the necessary federal and state permits and authorizations to construct the FPRRWS.

## PROPOSED ACTION

Congress authorized funding for the FPRRWS under PL 106-382, 114 Stat. 1451 at $175 million, with additional funding from the State of Montana and the Dry Prairie water users contributing another $17 million. Considering all funding sources, the total projected cost of the project in 1998 dollars is $192 million. Because the project would be constructed over a 10-year period, this authorized funding amount would be adjusted for inflation.

When completed, the project would serve a maximum of about 30,000 people. The 2000 census shows that the population for the combined Fort Peck and Dry Prairie service areas is 23,106 persons.

After the project is constructed, 25 full-time employees would be needed for operation and maintenance of both the Fort Peck Reservation and Dry Prairie service areas, with a combined annual budget of $3.572 million.

The Fort Peck Tribes have a federal reserved water right for 1 million acre-feet from the Missouri River dating from 1888. Most water rights in the western United States have priority dates based on when water was first put to beneficial use (e.g., agriculture). However, federal reserved water rights for Indian reservations and other federally reserved lands have priorities dating back to at least as early as establishment of reservations, even if water use on the reserved lands began at a much later date. The proposed project would use about 6,200 acre-feet each year of the one million acre-feet approved by the State of Montana Reserved Water Rights Compact Commission. The Tribes have agreed to provide the Dry Prairie service area water from tribal water rights at no cost for the life of the project.

The Proposed Action addressed in this EA represents the maximum project development authorized under the Fort Peck Reservation Rural Water System Act of 2000. Consequently, project effects analyzed in this EA reflect the maximum project development that could take place. The actual geographic extent and population served by the project could be smaller if communities in the Fort Peck Reservation and Dry Prairie service do not participate in the project.

Value Engineering Studies conducted by the BOR, consulting engineers, and the project sponsors indicate that there are several possible pipeline and pumping station configurations that may provide water to parts of the Dry Prairie service at less cost than the Proposed Action. Possible project reconfigurations are addressed in the "Fort Peck Reservation Rural Water Systems Accountability Report" (Watson Engineering 2002).

Two pipeline reconfigurations analyzed in the Accountability Report provide water to Opheim and Plentywood were determined to have potentially lower electrical, operation, and maintenance costs. The main features of these reconfigurations include:

- Allocation of flow between the three main core pipelines to eliminate the interconnecting points at the northwest and southeast points in the system.
- Relocation of reservoirs at higher elevations between pumping stations.
- Variation of pipeline pressures at pumping stations.
- Align pipeline between Highway 2 and Scobey west of the Poplar River.
- Deliver water to Opheim and Plentywood along a single route of the main transmission pipeline.

Although electrical, operation, and maintenance costs would be lower with the Opheim and Plentywood reconfiguration, pipeline costs would be higher. The economic feasibility of the reconfigurations will be analyzed in greater detail when engineering design-level investigations are undertaken for the project prior to construction.

Major components of the Proposed Action include the following:

## INTAKE STRUCTURE NEAR POPLAR

A screened intake would be constructed in the channel of the Missouri River near Poplar, for a distance of about 150 feet, to withdraw water into two 42-inch, non-metallic pipes. The intake and mesh size (0.25 inches or smaller) of the screen on the intake structure would be designed so that water velocities entering the intake would not exceed 0.50 feet per second. The intake structures would be placed in a sump and two 42-inch pipes would be placed in a trench in the river bottom, excavated from a barge (**Figure 2).**

Raw water would be conveyed in the 42-inch pipes to a wet well located beyond the 100-year floodplain. The gradient of the pipe would be designed so that water would be delivered from the intake by gravity. The wet well would be constructed to a depth of about 30 feet to allow gravity flow from the intake. The wet well would be about 15 feet in diameter to accommodate vertical turbine pumps placed in the well to lift water to the treatment plant. Pumping units would be housed in a facility with heat and ventilation and would be equipped with cranes to remove and repair the pumps. The water intake also would be equipped with air for delivery to the intake screens to keep them free from debris that could restrict water intake.

The intake system would also include a facility to add potassium permanganate solution to the raw water stream before it reaches the water treatment plant. Potassium permanganate would oxidize organic materials that could impart taste and odor to the water. Oxidation of organic materials prior to chlorination in the treatment plant would reduce the potential for formation of trihalomethanes, chemical compounds that can cause cancer and damage internal organs. Project design would minimize the potential for potassium permanganate to contaminate Missouri River water.

Chlorination would be accomplished through the addition of chlorine and ammonia during water treatment to form chloramine. Chloramine is an effective disinfectant for longer periods than chlorine alone.

## WATER TREATMENT PLANT

A conventional water treatment plant, occupying from 5 to 10 acres, is proposed for the project. Conventional water treatment involves coagulation/flocculation, sedimentation, filtration to remove suspended particles from the raw water, and disinfection of filtered water to kill microorganisms. Other conventional water treatments may also include activated-carbon absorption, alum and cation coagulation, pH modification, corrosion inhibition, and fluoridation. The water treatment would be designed to treat a maximum of 13.099 million gallons per day.

Conventional treatment combined with super pulsator, clarifier, microfiltration, nanofiltration, or media filtration may contribute to lower water treatment costs and improve quality of the treated water. Additional analyses and the final-

design stage of the project will be undertaken to adequately evaluate the relative merits of these additional water treatment options.

Suspended sediment from treated water would be transported to sludge ponds following removal at the water treatment plant. The sludge ponds would be about one acre in size. At full operating capacity (diversion of 6,200 acre-feet annually), about 0.84 feet of sludge (i.e., sediment and chemical coagulants) would be deposited in the sludge ponds. Sludge would be disposed of in an approved landfill.

## PUMPING STATIONS AND RESERVOIRS

Twenty primary pumping stations on the core pipeline system and 90 smaller pumping stations on branch lines are proposed to move water throughout the project area. Each primary pumping station would have four pumps. One pump would have the capacity to provide one-half the daily maximum demand. Each primary pumping station would have backup pumps that would be available for emergency use. Primary and secondary pumping stations would together occupy about 20 acres.

Pumping stations would be operated by electricity from local distribution lines and would be equipped with heating and ventilation equipment. Pumping stations with electrical demands greater than 5 horsepower would require three-phase power, whereas smaller pumps would need one-phase power. Three-phase power is currently available for pumping stations at all locations on the main pipeline system. Some upgrades may be required on existing electrical distribution systems along branch lines off the main pipeline system. The twenty primary pumping stations would have diesel backup generators in the event of electrical power failure. Pumping stations would also be used as access points to add additional chlorine to the system if necessary.

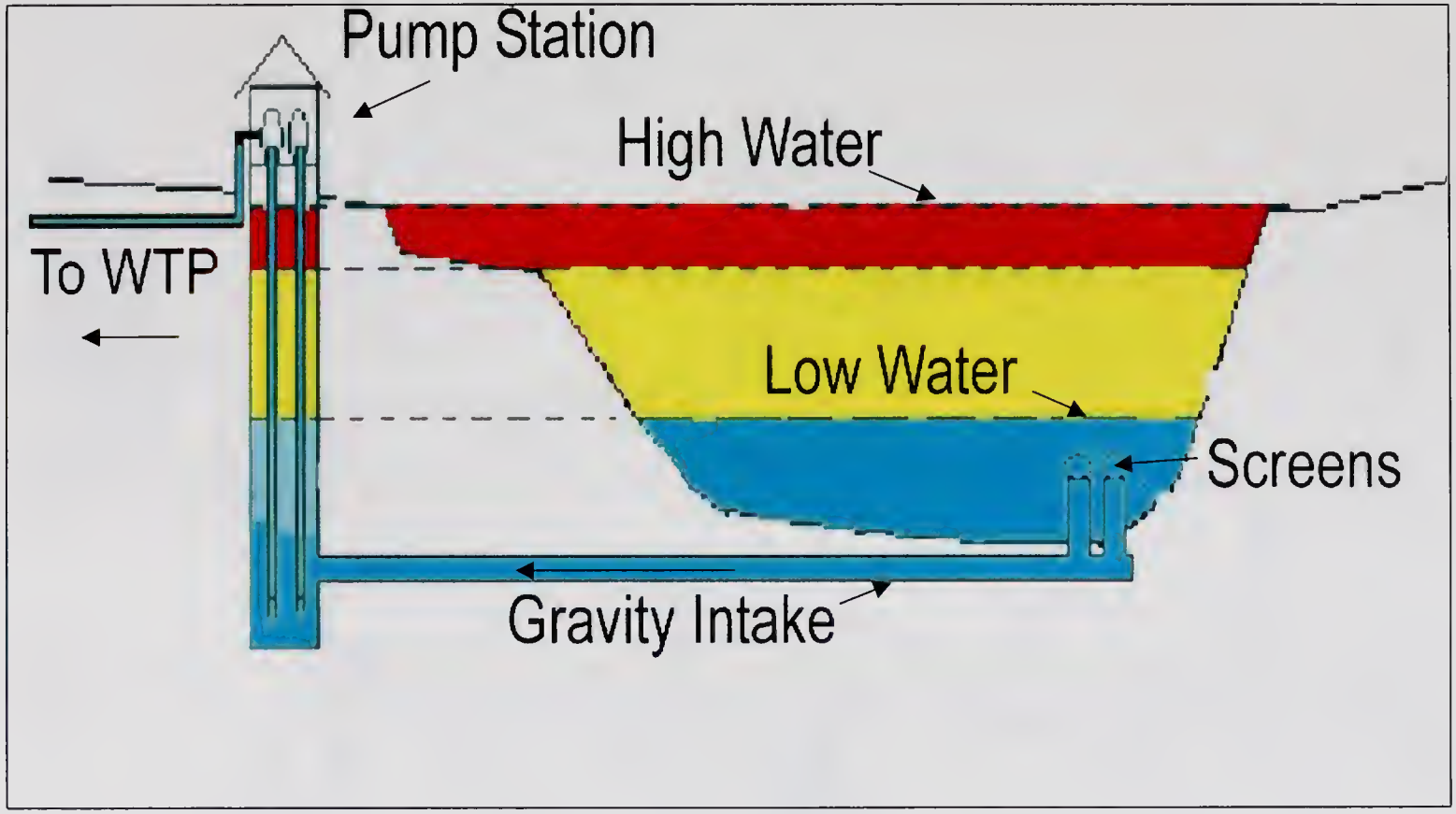
Each pumping station would have an associated storage tank. Storage tanks would provide water when short-term demands during peak-use periods are greater than can be supplied by the pipeline.

## PIPELINE TRANSMISSION SYSTEM

The pipeline for the project (**Figure 3**) requiring 9,666 acres of right-of-way, would extend about 3,191 miles and have pipelines ranging from 2 to 24 inches in diameter (**Table 1**). Approximately 1,370 miles of pipeline would be placed in the Fort Peck service area and 1,820 miles would be in the Dry Prairie service area (**Table 1**). Maximum pressures in the pipeline would be 250 pounds per square inch. Pipe sizes were determined by use of a hydraulic model that analyzed projected water demands at various locations, topographic features that affect pumping requirements, and electricity sources and costs.

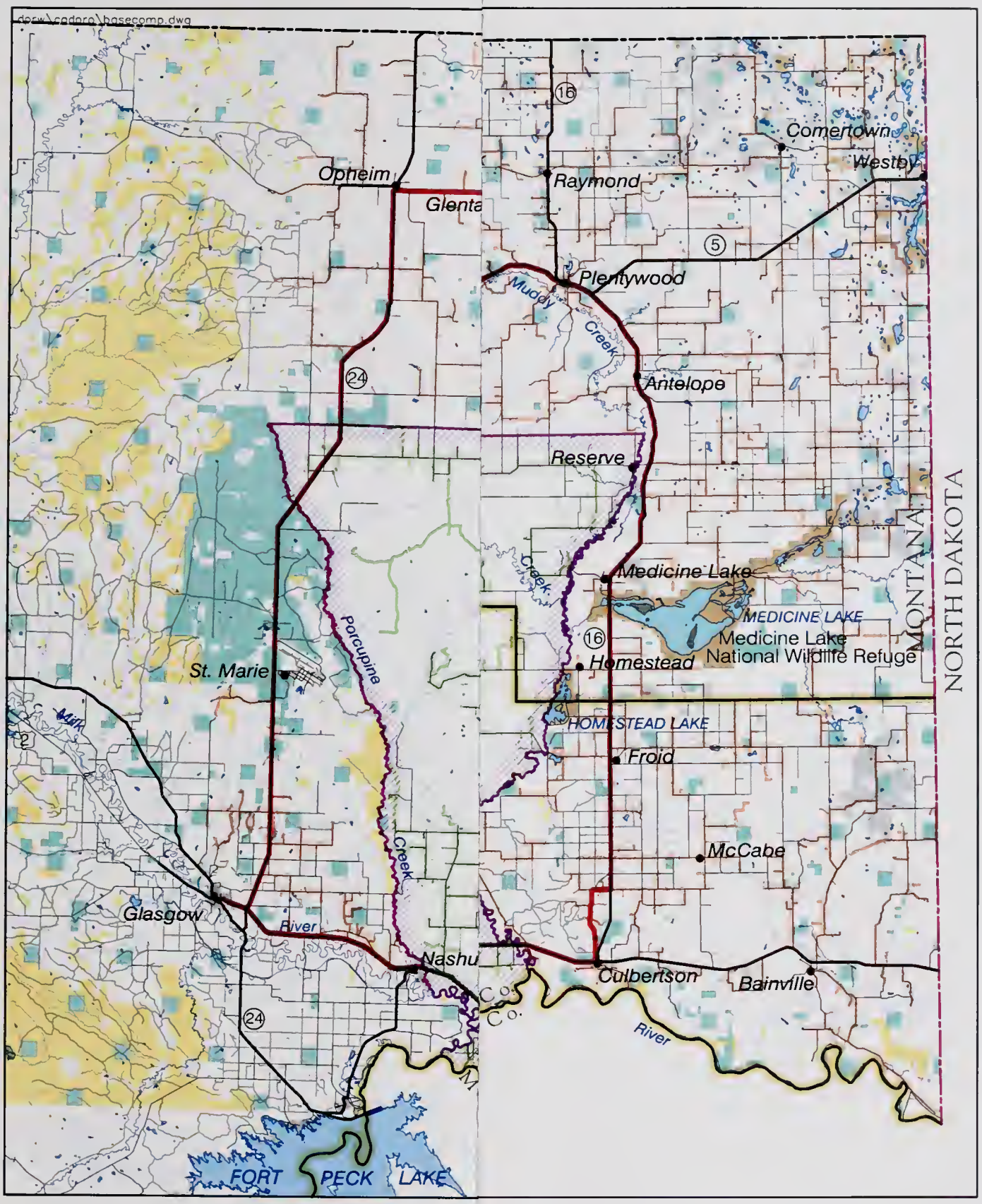
## SUPERVISORY CONTROL AND ACQUISITION (SCADA) INSTRUMENTATION

Communication links to monitor and control operation of pumping stations, reservoirs, and the treatment plant would be provided electronically by SCADA instrumentation. Operation of project facilities would be monitored from computers at control centers in Poplar (Fort Peck Reservation service area) and Culbertson (Dry Prairie service area). Project operators in the Fort Peck Reservation and Dry Prairie service areas would be able to monitor operation of all project facilities, but only project operators on the Fort Peck Reservation would be able control operation of the facilities on the Reservation. Similarly, only Dry Prairie operators would have access to controls of pumping stations and reservoirs in the Dry Prairie service area.




**MISSOURI RIVER INTAKE SCHEMATIC**
**FORT PECK RESERVATION RURAL WATER SYSTEM**

**FIGURE 2**



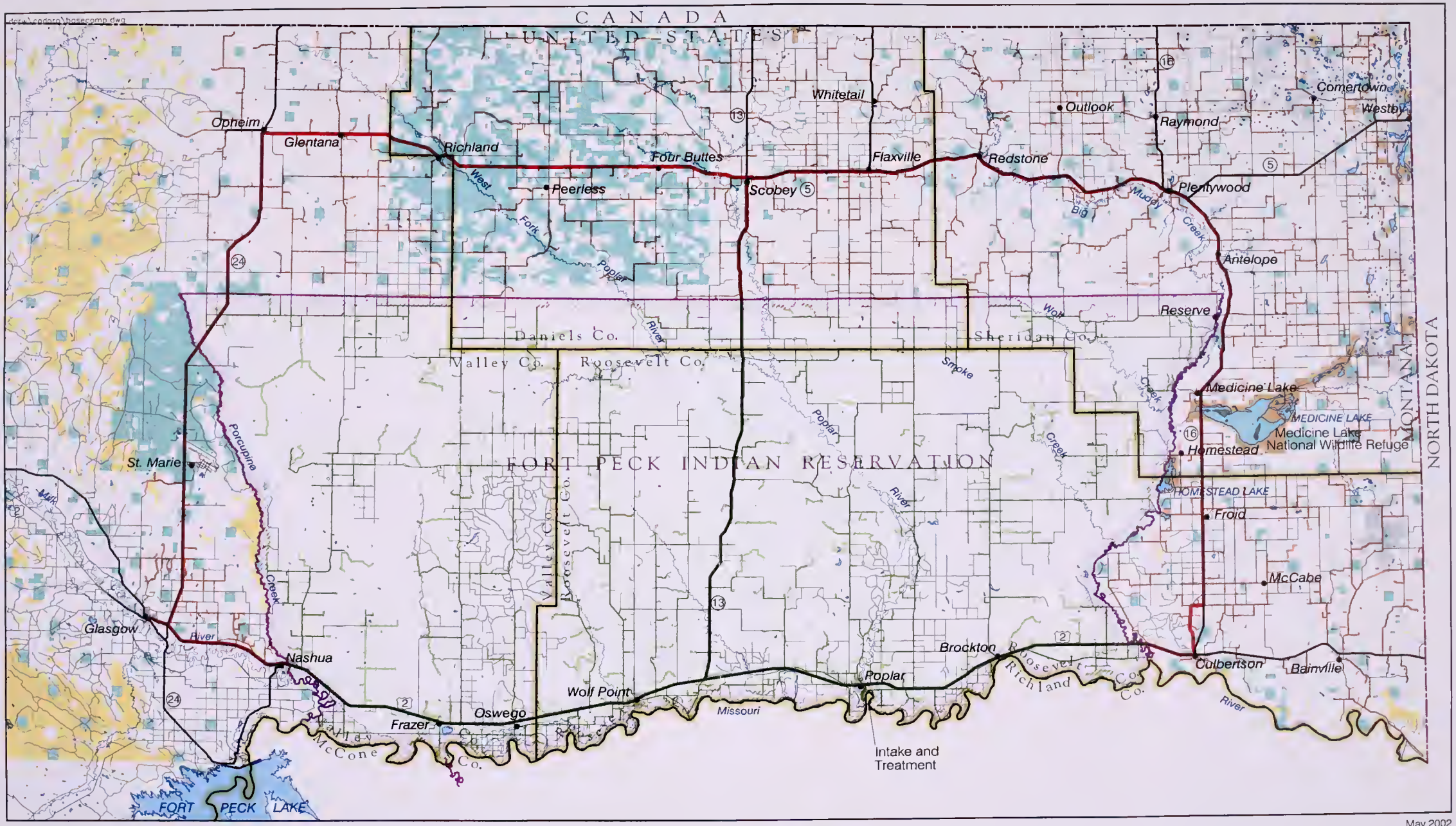

May 2002

N

0 Miles 8

MAXIM 9902313.300

Project Study Area
Fort Peck Reservation Rural Water System
, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 3




May 2002

N

0 Miles 8

MAXIM 9902313.300

Main Off-reservation Pipeline (DPRW)
Off-reservation Pipeline (DPRW)
Main On-reservation Pipeline (Tribes)
On-reservation Pipeline (Tribes)

State Administered Land
BLM Administered Land
U.S. Fish and Wildlife Service Land
U.S. Fish and Wildlife Service Conservation Easements
Reservation Boundary
County Boundary
State Boundary

Project Study Area
Fort Peck Reservation Rural Water System
Valley, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 3

**TABLE 1**
**Miles of Pipeline by Diameter for the Fort Peck Reservation and Dry Prairie Service Areas**

| Pipe Diameter | Fort Peck | Dry Prairie | Total Miles |
|---|---|---|---|
| 2 inch | 816.4 | 1,072.3 | 1,888.7 |
| 4 inch | 384.2 | 517.9 | 902.1 |
| 6 inch | 48.5 | 85.8 | 134.3 |
| 8 inch | 0 | 59.6 | 59.6 |
| 10 inch | 0 | 27.5 | 27.5 |
| 12 inch | 14.3 | 39.1 | 53.4 |
| 14 inch | 52.7 | 18.0 | 70.7 |
| 16 inch | 30.0 | 0 | 30.0 |
| 24 inch | 24.3 | 0 | 24.3 |
| Total miles of pipe | 1,370.4 | 1,820.1 | 3,190.5 |

## ELECTRICITY SUPPLY

The Fort Peck Reservation Rural Water System Act of 2000 (P.L. 106-382) specifies that power to operate the FPRRWS project will be made available during the irrigation season (April through September) through the Western Area Power Administration (WAPA) at a firm rate of approximately 15 mills per kilowatt hour, with capacity and energy sufficient to meet water treatment, pumping, and incidental operational requirements of the project. During the months of October through March, WAPA will supply non-firm power at wholesale rates from the Pick-Sloan Missouri River Basin project or purchase power from other sources at cost. Water costs are expected to range from 15 to 40 mills per kilowatt-hour (kwh), depending on the availability of non-firm Pick-Sloan power. Annual power consumption for the project would be about 14.2 million kwh. Information is not available to determine costs of power that would need to be purchased on the open market. Given the uncertain status of future power rates, costs for electricity to operate the project could increase over current estimates.

Pumping stations would require three-phase power for electrical demands greater than 5 horsepower and single-phase power for demands less than 5 horsepower. Single-phase power would be available at all proposed pumping station locations. Three-phase power would be available for all primary pumping station locations.

Although single-phase power is adequate for secondary pumping stations, operation and maintenance requirements are greater for pumping units operated with this power source. Without proper operation and maintenance, electrical pumps operated with single-phase power are more likely to burn out than pumps operated with three-phase power.

Power for the intake and water treatment plant would be supplied from the WAPA substation at Wolf Point through the existing Sheridan Electric Cooperative distribution system. Costs for transmitting power through the Sheridan Electric Cooperative distribution would be negotiated.

## CATHODIC PROTECTION

At locations where welded steel or ductile iron pipe is used and soils are corrosive, special measures to prevent corrosion of the pipe will be implemented (i.e., cathodic protection). Corrosion of the pipeline would be prevented by induction of weak electrical currents through buried pipelines.

## SERVICE AREAS

The FPRRWS project would consist of the Fort Peck Reservation and the Dry Prairie service areas (**Figure 1**). Project facilities for the Fort Peck Reservation service area would be owned by the federal government and held in trust for the Assiniboine and Sioux Tribes by the Bureau of Indian Affairs (BIA). The Fort Peck Reservation part of the project would be

**TABLE 1**
**Miles of Pipeline by Diameter for the Fort Peck Reservation and Dry Prairie Service Areas**

| Pipe Diameter | Fort Peck | Dry Prairie | Total Miles |
|---|---|---|---|
| 2 inch | 816.4 | 1,072.3 | 1,888.7 |
| 4 inch | 384.2 | 517.9 | 902.1 |
| 6 inch | 48.5 | 85.8 | 134.3 |
| 8 inch | 0 | 59.6 | 59.6 |
| 10 inch | 0 | 27.5 | 27.5 |
| 12 inch | 14.3 | 39.1 | 53.4 |
| 14 inch | 52.7 | 18.0 | 70.7 |
| 16 inch | 30.0 | 0 | 30.0 |
| 24 inch | 24.3 | 0 | 24.3 |
| Total miles of pipe | 1,370.4 | 1,820.1 | 3,190.5 |

## ELECTRICITY SUPPLY

The Fort Peck Reservation Rural Water System Act of 2000 (P.L. 106-382) specifies that power to operate the FPRRWS project will be made available during the irrigation season (April through September) through the Western Area Power Administration (WAPA) at a firm rate of approximately 15 mills per kilowatt hour, with capacity and energy sufficient to meet water treatment, pumping, and incidental operational requirements of the project. During the months of October through March, WAPA will supply non-firm power at wholesale rates from the Pick-Sloan Missouri River Basin project or purchase power from other sources at cost. Water costs are expected to range from 15 to 40 mills per kilowatt-hour (kwh), depending on the availability of non-firm Pick-Sloan power. Annual power consumption for the project would be about 14.2 million kwh. Information is not available to determine costs of power that would need to be purchased on the open market. Given the uncertain status of future power rates, costs for electricity to operate the project could increase over current estimates.

Pumping stations would require three-phase power for electrical demands greater than 5 horsepower and single-phase power for demands less than 5 horsepower. Single-phase power would be available at all proposed pumping station locations. Three-phase power would be available for all primary pumping station locations.

Although single-phase power is adequate for secondary pumping stations, operation and maintenance requirements are greater for pumping units operated with this power source. Without proper operation and maintenance, electrical pumps operated with single-phase power are more likely to burn out than pumps operated with three-phase power.

Power for the intake and water treatment plant would be supplied from the WAPA substation at Wolf Point through the existing Sheridan Electric Cooperative distribution system. Costs for transmitting power through the Sheridan Electric Cooperative distribution would be negotiated.

## CATHODIC PROTECTION

At locations where welded steel or ductile iron pipe is used and soils are corrosive, special measures to prevent corrosion of the pipe will be implemented (i.e., cathodic protection). Corrosion of the pipeline would be prevented by induction of weak electrical currents through buried pipelines.

## SERVICE AREAS

The FPRRWS project would consist of the Fort Peck Reservation and the Dry Prairie service areas (**Figure 1**). Project facilities for the Fort Peck Reservation service area would be owned by the federal government and held in trust for the Assiniboine and Sioux Tribes by the Bureau of Indian Affairs (BIA). The Fort Peck Reservation part of the project would be

managed and operated by the Fort Peck Assiniboine and Sioux Tribes under contract with the BIA as provided under the Indian Self-determination Act (P.L 92-638).

The Dry Prairie part of the project would be owned, operated, and managed by the Dry Prairie Rural Water Authority. The Dry Prairie Rural Water Authority is a legal entity, established by Montana Senate Bill 302, with authority to supply water to districts and municipalities, issue bonds, and carry out other responsibilities necessary to manage and operate the off-Reservation part of the project. A cooperative agreement between the Dry Prairie Rural Water Authority and the Bureau of Reclamation specifies the policy and responsibilities for planning and construction of the FPRRWS in the Dry Prairie service area.

Identification of future water users for both service areas of the project has been ongoing since 1998 and will continue through preparation of this EA. Future rural water users in the Dry Prairie service area have paid a fee of $100 to register for the project. Each community that chooses to receive water from the project has paid a fee of $5.00 per service connection within their water system. Each community that chooses to receive water from the project would have the option of maintaining existing water supply facilities. However, the economic advantages of receiving water from the project may make it less desirable for communities to maintain existing water-supply facilities. All Dry Prairie Rural Water Authority contracts with municipalities would have an exclusive water-supply provision.

Once the project is complete, there would be no monthly charge for water to residents in the Fort Peck Reservation service area (both tribal and non-tribal members). Legislation for the FPRRWS authorizes appropriations to cover monthly water and operation and maintenance costs for water users in the Fort Peck Reservation service area, whether they are tribal or non-tribal members.

Water users in the Dry Prairie service area would be billed monthly based on the amount of water used. Each water user would have a meter installed to record water usage. Rates for Dry Prairie water users are estimated at $40 per month.

There would be no taxes assessed to water users in the Fort Peck Reservation or in the Dry Prairie service areas for construction and operation of the system. All costs for construction, operation, and maintenance in the Fort Peck Reservation service area would be covered by federal appropriations.

Construction funding for the Dry Prairie service-area facilities would be provided by federal appropriation ($51 million), state appropriation ($8.475 million), and initial assessment to Dry Prairie water users ($8.475 million). Additional money necessary for construction, operation, and maintenance of the Dry Prairie service-area facilities would be generated from local bonding using the water system itself as collateral. Revenue bonds would be retired through money generated by the system and not taxes. Financing the local share (i.e., $8.475 million from water users) of construction costs with revenue bonds would allow for voluntary participation in the project.

Although it is important to identify water users prior to construction so that the system can be sized to efficiently distribute water to all parts of service areas, it is not possible to predict locations for all future water users. If a person or household chooses to receive water from the project after the project is completed, fees to hook up to water distribution lines would be borne by the water user. Hook-up costs would vary depending on the length of pipeline that would be constructed from the distribution line to the site of use. It is likely that the average cost to hook up after the project is completed would be $1,000 to $2,000 per water user. If a water user chooses to quit receiving water from the project after the project has been in operation, there would be no fee assessed to terminate services.

Because the intake structure and water treatment plant would provide water to both service areas, it would be necessary for Dry Prairie to pay for part of the operation and maintenance costs of these facilities. Costs to Dry Prairie for operation and maintenance would be prorated on amounts of water used in the Dry Prairie service area.

## RIGHT-OF-WAY (ROW) EASEMENTS

Construction of pipelines for the project would require obtaining ROW easements for crossing public and private land in the Fort Peck Reservation and Dry Prairie service areas. On the Reservation, pipelines would cross trust lands owned by the Assiniboine and Sioux Tribes, lands of individual tribal members, and private lands, no longer in trust.

Most land within the Dry Prairie service area is privately owned, but there are parcels of state and federal land distributed throughout. There are relatively large blocks of state land in Daniels and Valley counties (**Appendix B** and **Figure 3**). Lands managed by The Bureau of Land Management and U.S. Fish and Wildlife Service would be crossed between Glasgow and St. Marie and in the Medicine Lake/Westby area, respectively, (**Appendix B** and **Figure 3**).

Easements would need to be obtained from each federal agency to construct the project on lands managed by that federal agency. NEPA compliance for issuing easements to cross lands administered by the U.S. Fish and Wildlife Service would probably require site-specific environmental assessments for parcels encroached on by the project. Parcels administered include Waterfowl Production Areas, the Medicine Lake National Wildlife Refuge, and private lands for which the U.S. Fish and Wildlife Service has easements.

Project sponsors assume that private landowners would donate easements to the project because of the benefits they and their neighbors would receive from water delivery. This has been a common practice on other large MR&I projects in the Great Plains. If a landowner chooses not to donate easements, negotiations would be conducted to attempt to accommodate concerns of the landowner. If a landowner fails to provide the requested easement, the project engineer would evaluate the feasibility of routes around the parcel and choose the best alternate route.

Generally, construction easements for the project would be 75 feet wide with a permanent operation and maintenance easement varying from 5 to 35 feet, depending on pipe size. Permanent easements on state lands typically are 5 to10 feet for pipelines up to 12 inches and 20 feet for pipelines up to 36 inches. Permanent easements allow access for repair of breaks or other short-term maintenance activities. Agricultural activities would be allowed within the permanent easement, but no permanent structures, tree planting, or other activities that would hinder project operations would be allowed.

Permanent easements are proposed for all structures including pipelines. Pumping stations, reservoirs, and other small facilities would be on lands with permanent easements. Large facilities such as the water treatment plant, intake, and maintenance buildings would be located on land purchased by the project.

## WATER CONSERVATION PLAN

Water conservation is a standard and accepted practice of contemporary municipal, rural, and industrial water projects. Public law 106-382 provides that a water conservation plan be developed that will ensure that Reservation and Dry Prairie water users use the best practicable technology and management techniques to conserve water. The Water Conservation Plan (Watson Engineering no date) prepared for the FPRRWS is based on guidelines of the EPA, mandated under the Safe Drinking Water Act of 1996, as amended.

EPA guidelines for the proposed project include the following water conservation planning goals and objectives:

- Eliminating, downsizing, or postponing the need for capital projects.
- Improving the utilization and extending the life of existing facilities.
- Lowering variable operating costs.
- Avoiding new source development costs.
- Improving drought and emergency preparedness.
- Educating water users about the value of water.
- Improving reliability and margins of safe and dependable yields.

- Protecting and preserving environmental resources.

It is not anticipated that increased availability of good quality water would require expansion of existing sewage treatment facilities in communities in the project area. The Water Conservation Plan is directed at water conservation during days of peak summer consumption, and would reduce rather than expand the demand for sewage treatment.

# 3.0 AFFECTED ENVIRONMENT

## GENERAL DESCRIPTION OF THE PROJECT AREA

The project area for the FPRRWS includes all or parts of Valley, Daniels, and Sheridan counties - approximately 7,800 square miles in northeastern Montana (**Figure 3**). The Fort Peck Reservation covers about 3,200 square miles, and the Dry Prairie service area covers about 4,600 square miles. The project area is bounded on the north by the Canadian border, on the east by North Dakota, on the south by the Missouri River, and on the west by an arbitrary line that allows most of the residents of Valley County to be included. Because the boundaries are fixed as a result of the Congressional authorization for the FPRWSS, changes would require an act of Congress.

Tribal headquarters for the Fort Peck Assiniboine and Sioux Tribes are at Poplar, Montana. The Reservation includes parts of Daniels, Valley, Sheridan and Roosevelt counties. Land ownership of the 2,093,310 acres on the Reservation consists of about 27 percent allotted lands, 55 percent fee lands, and 17 Tribal trust lands.

The Dry Prairie service area includes portions of Valley, Daniels, Sheridan, and Roosevelt counties. Together the Fort Peck Reservation and Dry Prairie service area include all of Daniels, Sheridan, and Roosevelt counties and part of Valley County. The majority of land ownership is private. The Dry Prairie Rural Water Authority is headquartered in Culbertson, Montana.

## DESCRIPTION OF EXISTING WATER SUPPLY SYSTEM

The Missouri River is the source of water for the communities of Culbertson, Glasgow, and St. Marie. Glasgow and St. Marie rely on a system owned and operated by Boeing Company that draws water from the dredge ponds downstream from Fort Peck Reservoir. Other communities such as Bainville, Medicine Lake, Plentywood, Poplar, and Wolf Point rely on groundwater.

The Missouri River provides 2,648,000 gallons per day and wells provide an additional 7,823,000 gallons per day, for a total water supply capacity in the project area of 10,480,000 gallons per day.

Existing water treatment includes settlement, flocculation of suspended sediments, and chlorination. Iron and manganese removal are common in many communities that rely on groundwater (e.g., Bainville, Medicine Lake, Plentywood, Poplar, and Wolf Point). Green sand filters are in use for iron and manganese removal. Flaxville uses ion exchange for nitrate removal. Frazer and Froid use reverse osmosis for water treatment. Distribution systems are generally in good repair.

Some larger communities in the project area have investigated ways to improve their water supply systems. For example, Wolf Point is considering conversion to surface water from the Missouri River and has begun a process to obtain water rights from the State of Montana. Boeing Company has undertaken investigations to rehabilitate the intake at the dredge ponds downstream from Fort Peck Reservoir, pipelines, pumping stations, and treatment plants to provide a more reliable water source for Glasgow and St. Marie.

## TOPOGRAPHY, GEOLOGY, AND SOILS

The project area lies within the Glaciated Missouri Plateau section of the Great Plains Physiographic Province (DeVelice et al 1995). The southern boundary of this province is defined by the southern extent of the continental glaciation during the last ice age. The plains primarily consist of relatively flat to gently rolling sedimentary and till surfaces modified by stream erosion and glaciation. Areas of dissected topography (badlands and incised drainages) exist along the Missouri River and in the headwaters of Big Muddy Creek.

Pronounced landforms in the project area include the Big Muddy Creek drainage, Medicine

Lake area, and Missouri Coteau prairie potholes (Heidel et al 2000). Big Muddy Creek lies in a broad valley formed as major outwash channel near the margin of a glacial front. Terraces that are both pre- and post-glacial in origin border the broad stream valley, oversized for the stream now occupying it. In the northern part of the study area, Big Muddy Creek and its tributaries cut into the Flaxville gravel and the Fort Union Formation, made up of claystone, calcareous siltstone, and sandstone.

Medicine Lake is located above the ancestral Missouri River channel that originally flowed north to Hudson Bay. The last glacial activity forced it to turn its course south as the glacial sheet moved down from Canada. The sand deposits around Medicine Lake originate from the bed of the outwash channel. Most of the sand deposits form a thin veneer over glacial till and bedrock.

The outwash terrain around Westby and collapsed moraine landscape around Comertown make up the Missouri Coteau prairie pothole area, with a high density and diversity of wetlands (Heidel et al 2000). The area experienced at least three periods of glacial advances, the most recent of which left hummocky, collapsed sediment fringed by outwash channels.

Elevations in the project area range from about 1,900 feet south of Bainville to over 3,200 feet in the northwestern part of the study area.

Grassland soils dominate the project area and generally have dark surface layers with high organic matter content. Soils with high clay contents are most common throughout the project area. These soils have high water- and nutrient-holding capacities and some have abundant salts. They often have high shrink-swell potentials and may be unstable when wet but the dry climate and gentle topography of the project area has resulted in few problems with pipeline integrity.

Medium- and sandy-textured soils are also present and especially susceptible to wind and water erosion when vegetation is removed. These soils are common along the larger streams and rivers. Soils formed in stabilized sand dunes are present southeast of Medicine Lake.

Long, steep slopes with high potential for stability problems are relatively rare in the project area and along the proposed pipeline routes. Areas of potentially unstable soils are usually limited to small areas and often can be avoided.

Approximately one-fourth of the project area has soils classified as "prime farmland if irrigated." Less than five percent of these potential prime farmland acres are being irrigated and, therefore, are not classified as prime farmland. Prime farmland soils in the project area include the Bowbells, Grail, Harlem, Havre, Havrelon, Trembles, and Williams soil series where they exist on slopes of less than four percent. Most of these prime farmland soils occur along major rivers such as the Missouri and Poplar.

## WATER RESOURCES

Major surface water resources in the project area include the Missouri, Poplar, and Milk rivers; Porcupine, Tule, Wolf, Smoke, and Big Muddy creeks; and Medicine Lake. The Missouri River, the proposed source of water for the FPRRWS, has an annual average discharge of 6 to 7 million acre-feet.

Streams within the project area generally are turbid, low-gradient prairie streams with relatively high concentrations of calcium, magnesium, sodium, iron, sulfate, and total dissolved solids (TDS). During the spring and at other periods of high stream flows, concentrations of dissolved ions and chemical compounds are generally low. Concentrations of dissolved constituents generally increase as stream flows decrease.

Groundwater is present in Madison Formation and the Flaxville Gravels. The Madison Formation aquifer is salty and not suitable as a drinking water source. Groundwater in the Flaxville Gravel generally is too high in nitrates for human and livestock consumption.

Groundwater has been contaminated in aquifers near the city of Poplar with by-products of oil drilling and oil production (primarily benzene and brine) that have leaked from the East Poplar Oil Field. Contaminants in groundwater are migrating toward the Poplar. Pollutants have been found in approximately 20 drinking water

wells and have rendered the water no longer potable. Poplar's three public water supply wells are potentially threatened as contaminants continue to migrate toward the wells.

# VEGETATION

Vegetation on the Reservation and Dry Prairie service area is typical of the northern Great Plains with an interspersion of native plant communities and cropland (primarily hay and small grains). Within the project area, approximately 60 percent is cropland, 30 percent is rangeland, 5 percent is riparian/wetland, and the remainder is developed or barren land. Croplands produce mainly small grains or hay, or are idle in the Conservation Reserve Program (CRP).

Because approximately 60 to 80 percent of native grasslands in the Northern Great Plains have been converted to croplands, remaining tracts of prairie have become a valuable resource for native plants of cultural and medicinal value and for wildlife habitat. Many wildlife species associated with prairie grasslands have greatly declined in numbers and geographic range because cultivation, overgrazing, and noxious weed infestations have eliminated or degraded native grasslands.

Native grasslands on the project consist of Northern Grassland, complexes of Sandy Grassland/Northern Grassland, Central Grassland, and Northeastern Grassland on eastern portions of the Reservation (Payne 1973). Dominant plants of native prairie communities include western wheatgrass, bluebunch wheatgrass, green needlegrass, needle-and-thread, blue grama, little bluestem, prairie sandreed, fringed sagewort, dotted gayfeather, scurfpea, cudweed sagewort, western yarrow, winterfat, and American vetch. Common shrubs include big sagebrush, silver sagebrush, rabbitbrush, greasewood, juniper, rose, and skunkbush sumac.

Native prairie is present in relatively large tracts in the western and central parts of the Reservation (**Figure 4**). One tract of native prairie, contiguous with federal lands adjacent to the Reservation, is of national significance because of its large size, good range condition, and diverse plant communities (Brian Martin, Nature Conservancy, pers. comm. 1998).

In the northeastern part of the project area, sandhills and prairie potholes support distinctive vegetation. Prairie potholes have diverse vegetation and important ecological functions and values. The sandhills are stabilized sand dunes formed on the lee side (southeast) of Medicine Lake and southwest of Froid.

Woody vegetation is largely confined to floodplains of perennial rivers and streams (e.g., Missouri River, Milk River, Poplar River, Smoke Creek, Wolf Creek, Porcupine Creek and Muddy Creek) and woody draws that dissect uplands (Hansen et al 1995). The most common riparian forest communities are dominated by an overstory of green ash or Great Plains cottonwood, with snowberry, chokecherry, thorny buffaloberry, Wood's rose, and red-osier dogwood being common shrub species.

Woody draws are composed predominantly of a forest overstory of green ash and American elm, with a diversity of shrubs and herbaceous understory species. Woody draws mostly occur in the upper reaches of Big Muddy Creek (Redstone to Plentywood) and around Culbertson. Typically, they occur where rolling uplands have been eroded into incised drainages.

## PLANT SPECIES OF SPECIAL CONCERN

Although not listed as threatened or endangered under the Endangered Species Act of 1973, plant species of special concern are considered by the Montana Natural Heritage Program to be vulnerable to extirpation across their range or across the state due to rarity, significant loss of habitat, or sensitivity to human-caused mortality or habitat disturbances. Data obtained from the Natural Heritage Program and a report by Heidel et al (2000) identify species of special concern known to be present or that could occur in the project area (**Table 2**). Heidel et al (2000) surveyed plants only in Sheridan County, but some of the species they found could also be present in suitable habitats elsewhere in the project area.

TABLE 2
**Plant Species of Special Concern Found in the Project Area**

| Common Name | Scientific Name | Occurrence in Project Area |
|---|---|---|
| Poison suckleya | *Suckleya suckleyana* | Alkaline area, 15 miles N.E. of Wolf Point |
| Pale-spiked lobelia | *Lobelia spicata* | Margin of prairie potholes near Brush Mountain and Westby |
| Ovalleaf milkweed | *Asclepias ovalifolia* | Grassland slopes among prairie potholes near Comertown |
| Many-headed sedge | *Carex sychnocephala* | Margins of prairie potholes near Comertown |
| Chaffweed | *Centunculus minimus* | Vernally wet areas among prairie potholes near Comertown |
| Smooth goosefoot | *Chenopodium subglabrum* | Active blowouts in sandhills near Medicine Lake |
| Fendler cat's-eye | *Cryptantha fendleri* | Sandhills near Medicine Lake |
| Schweinitz' flatsedge | *Cyperus schweinitzii* | Medicine Lake sandhills |
| Silky prairie clover | *Dalia villosa* | Sandy prairie in Medicine Lake sandhills |
| Kalm's lobelia | *Lobelia kalmii* | Rich-fen wetlands near Dagmar |
| Plains phlox | *Phlox andicola* | Grasslands north and east of Medicine Lake |
| Mealy primrose | *Primula incana* | Alkaline meadows among prairie potholes in Sheridan County |
| Slender bulrush | *Scirpus heterochaetus* | Marsh wetlands at Medicine Lake |
| Northern blue-eyed grass | *Sisyrinchium septentrionale* | Wet meadows near Comertown |

## ETHNOBOTANY

People of the Fort Peck Tribes use many native plants for food, medicine, or spiritual purposes. Plants of ethnobotanical importance known or likely to occur on the Reservation and Dry Prairie service areas are listed as follows (Johnston 1987; Hart and Moore 1976, and Gilmore 1977): sweet grass, cattail, field mint, cow parsnip, stinging nettle, horsetail, arrow-grass, arrow-head, Baltic rush, cottonwood, chokecherry, thorny buffalo-berry, golden currant, baneberry, reed grass, hawthorn, blue camas, willow, red-osier dogwood, wolf willow (silver berry), water hemlock, creeping juniper, blue grama, wild onion, needle-and-thread, Indian ricegrass, sedges, yellow bells, sego lily, wild rose, avens, shrubby cinquefoil, wild licorice, pasque flower, saskatoon (serviceberry), bitterroot, spring beauty, winter fat, fringed sage, man sage, silver sage, wild strawberry, breadroot (Indian turnip), seneca-root, buffalo bean, prairie clover, prairie coneflower, puccoon, and scarlet globemallow.

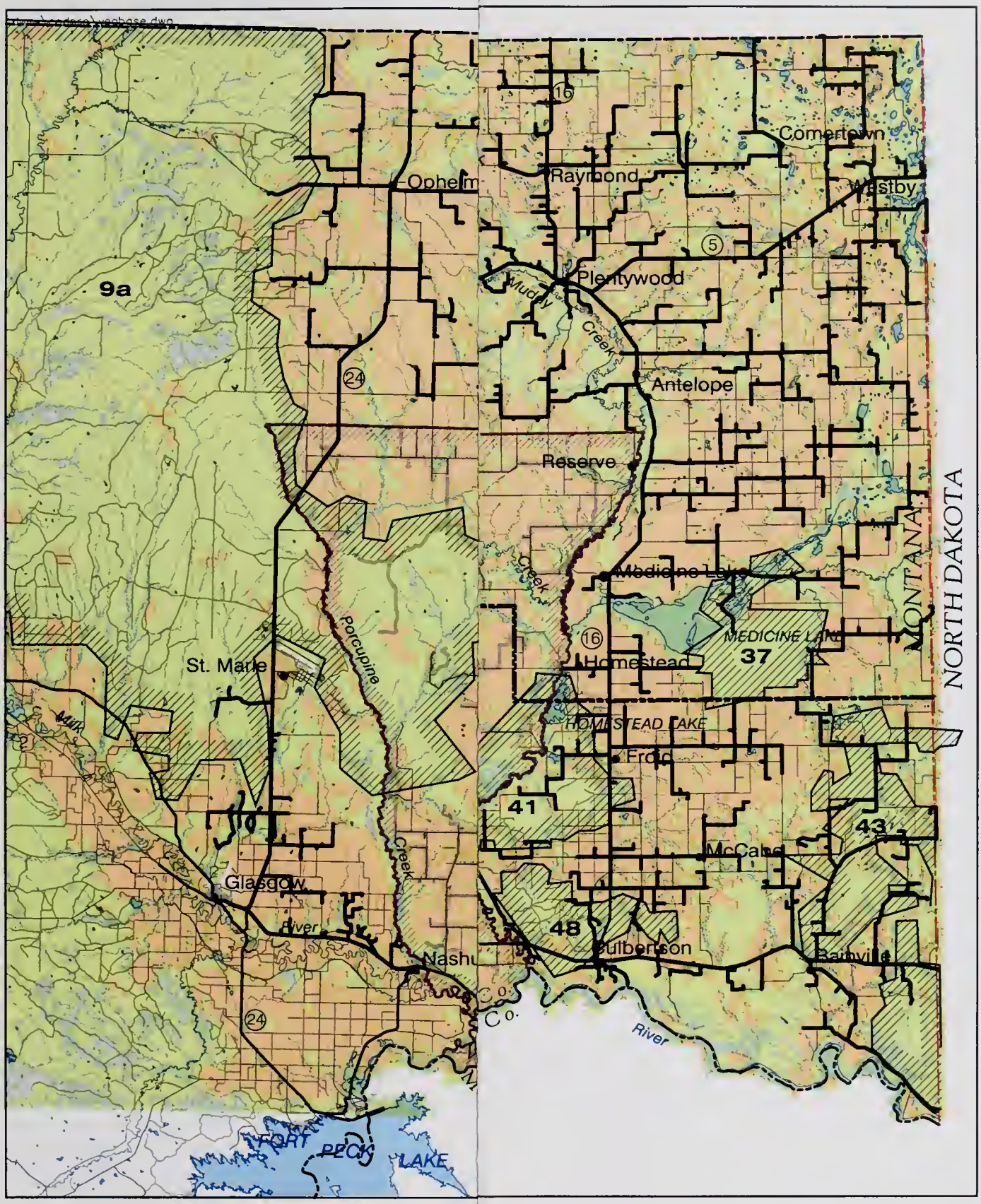
## NOXIOUS WEEDS

Noxious weeds are exotic plant species that often render land unfit for agriculture, forestry, livestock, or other beneficial uses (County Noxious Weed Control Act). Many noxious weeds dominate and replace native vegetation because of the lack of natural controls combined with aggressive growth characteristics and unpalatability. Each of the four counties in the project area have developed noxious weed management plans to comply with the County Noxious Weed Control Act. The most common noxious weeds in the project area are leafy spurge, spotted knapweed, diffuse knapweed, Russian knapweed, Canada thistle, field bindweed, Dalmatian toadflax, and showy milkweed.

# WETLANDS

Studies to delineate and determine functions and values of wetlands in the project area were conducted by Elliott (1998), Maxim Technologies (1999), and Metz (1999). These studies are part of the project file and are available for public review. In addition to field studies, National Wetland Inventory (NWI) maps were utilized to identify and characterize wetlands. Wetlands that would be affected by the proposed project are listed in **Appendix C** and shown in **Figure 5.**

"Waters of the U.S." is a term used by the U.S. Army Corps of Engineers (COE) to identify sites that fall under jurisdiction of Section 404 of the Clean Water Act. Waters of the U.S. include




May 2002

N

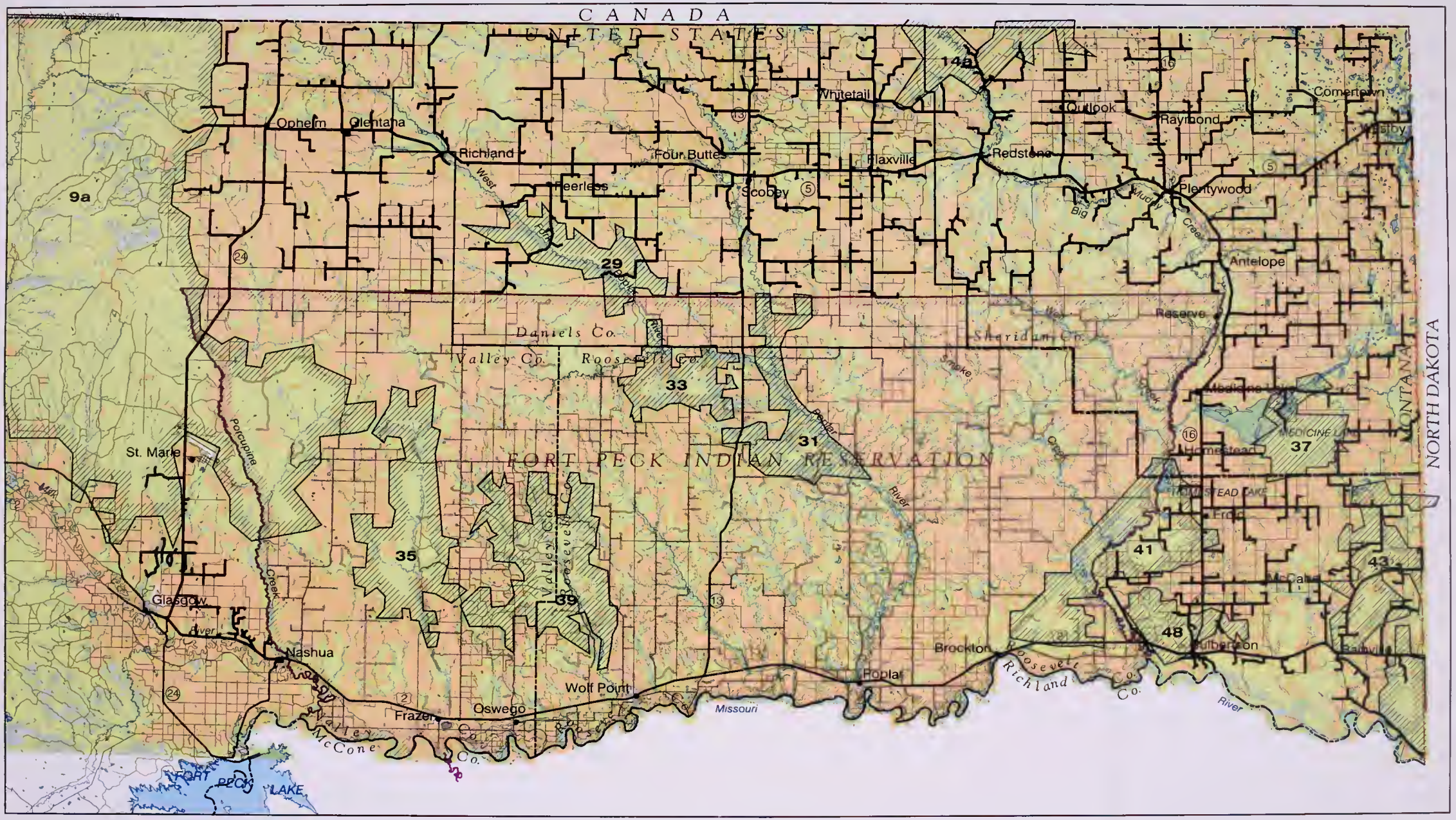
0 Miles 8

Main
On-

Main
Off-

Vegetation Types
Fort Peck Reservation Rural Water System
, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 4

MAXIM 9902313.300




May 2002

N

0 Miles 8

MAXIM 9902313.300

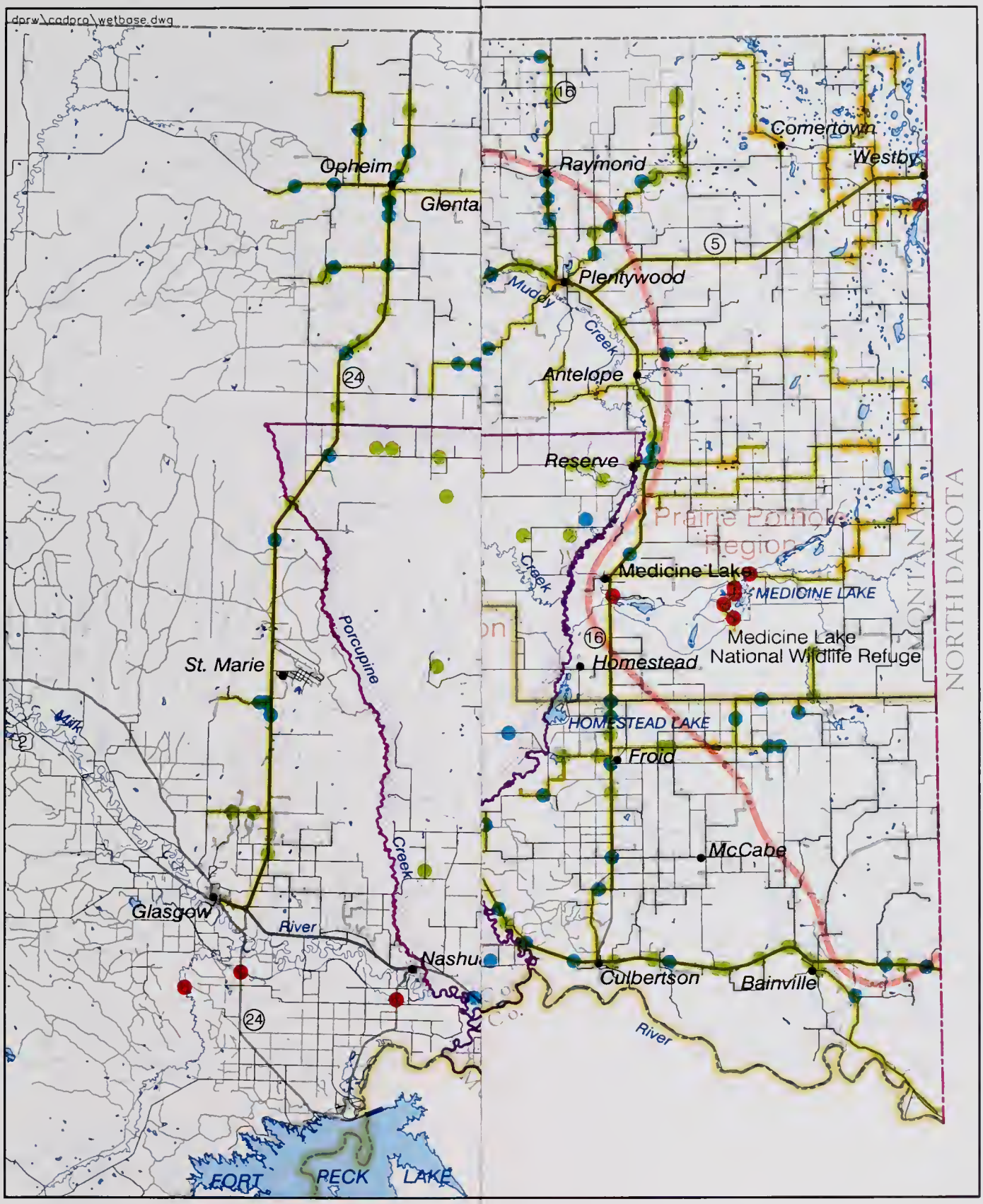
Main On-reservation Pipeline
On-reservation Pipeline

Main Off-reservation Pipeline
Off-reservation Pipeline

Reservation Boundary
County Boundary
State Boundary

Land Use
Rangeland
Cropland
Riparian Woodlands/Wetlands/Water
Urban Developed
Barren
41 Untilled Grassland and Identification Number

Vegetation Types
Fort Peck Reservation Rural Water System
Valley, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 4



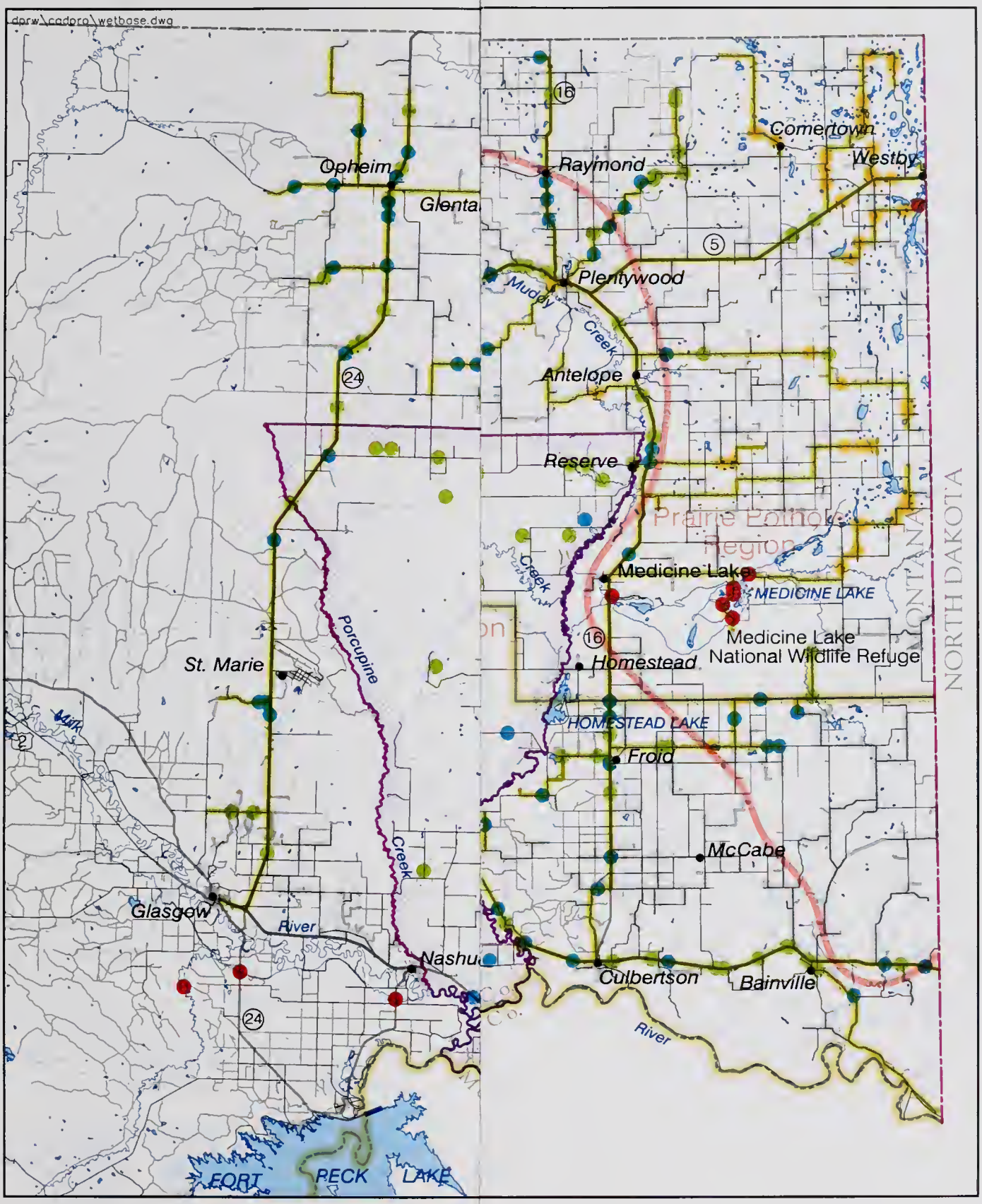

May 2002

N

0 Miles 8

MAXIM 9902313.300

Wetlands
Fort Peck Reservation Rural Water System
, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 5



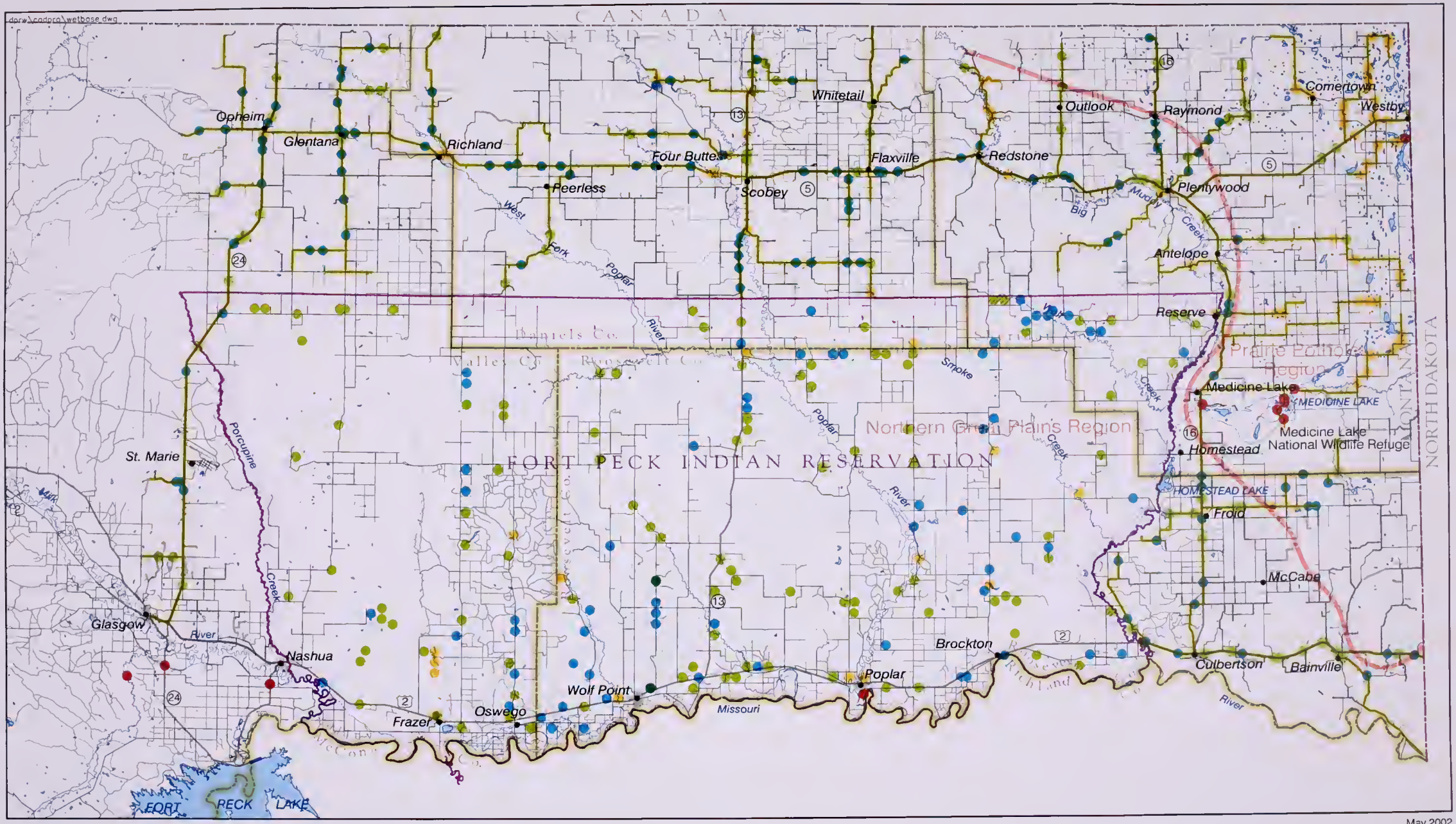

May 2002

N

0 Miles 8

MAXIM 9902313.300

Wetlands
Fort Peck Reservation Rural Water System
, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 5


dprw\codpro\wetbase.dwg
CANADA
UNITED STATES
NORTH DAKOTA
MONTANA
Opheim
Glentana
Richland
Four Buttes
Peerless
Whitetail
Scobey
Flaxville
Redstone
Outlook
Raymond
Comertown
Westby
Plentywood
Antelope
Reserve
Medicine Lake
MEDICINE LAKE
Medicine Lake National Wildlife Refuge
Homestead
HOMESTEAD LAKE
Froid
McCabe
Culbertson
Bainville
Brockton
Poplar
Wolf Point
Oswego
Frazer
Nashua
Glasgow
St. Marie
FORT PECK INDIAN RESERVATION
Daniels Co.
Valley Co.
Roosevelt Co.
Sheridan Co.
Prairie Potholes Region
Northern Great Plains Region
Big Muddy Creek
Smoke Creek
Poplar River
West Fork Poplar River
Porcupine Creek
Milk River
Missouri River
Missouri River
FORT PECK LAKE
N
0 Miles 8
MAXIM 9902313.300
Reservation Boundary
County Boundary
State Boundary
Extent of Field Reconnaissance
Off-reservation Pipeline
MDT Wetland Catagories
Category I
Category II
Category III
Category IV
May 2002
Wetlands
Fort Peck Reservation Rural Water System
Valley, Daniels, Sheridan, and Roosevelt Counties, Montana
FIGURE 5

both wetlands and non-wetlands that meet COE criteria. The regulatory definition of wetlands adopted by the COE and Environmental Protection Agency is:

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The COE has determined that jurisdictional wetlands must have a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Recent legal decisions indicate that jurisdictional wetlands must also have a connection to interstate commerce. Generally, wetlands associated with streams are considered to have an interstate commerce connection, but isolated depressional wetlands (e.g., ponds, lakes, and potholes) do not. Although the COE does not consider isolated wetlands to be jurisdictional under the Clean Water Act, the BOR for purposes of impact assessment and mitigation addresses all wetlands in this EA, irrespective of interstate commerce connections.

Non-wetland waters of the U.S. include stream channels (both perennial and intermittent), open water (ponds, lakes, and reservoirs), and other areas that do not support hydrophytic vegetation.

Johnson (1966) distinguishes three general wetland categories that occur in the project area: glaciated wetlands, riparian wetlands, and wetlands created by human activities (e.g., reservoirs, stockponds, and roads). Glaciated wetlands exist in areas where retreating continental glaciers left numerous permanent and semi-permanent prairie wetlands, often referred to as potholes. A high density of these glaciated wetlands occurs in the northeastern portions of Sheridan and Roosevelt counties.

Glaciated wetlands include both saline and freshwater prairie pothole wetlands. Because of variation in water chemistry, prairie potholes have diverse vegetation, structure, and species composition. Riparian wetlands, including cottonwood forest communities are most extensive along major rivers like the Missouri, Milk, and Poplar, and major streams like Big Muddy, Porcupine, Tule, Smoke, and Wolf creeks.

The most common wetland types are classified as palustrine emergent (PEM) and palustrine scrub shrub (PSS), according to the Cowardin system and the HGM classification method. Common wetland plants include cattail, Nebraska sedge, foxtail barley, prairie cordgrass, fowl bluegrass, spike-rush, curly dock, bulrush, snowberry, peachleaf willow, silver sage, wild rose, and plains cottonwood.

Pipelines associated with the proposed project would not cross the Missouri River, an exceptionally important wetland (i.e., Class I); however, the intake structure would have the potential to affect aquatic biota (e.g., paddlefish, blue sucker, sturgeon chub, and sicklefin chub).

Wetlands in the project area were classified as Category I, II, III, and IV based on ecological functions and values (Berglund 1999). Category I wetlands are exceptionally high-quality wetlands and are generally rare to uncommon in the state. These wetlands provide habitat for federally listed threatened, endangered, or candidate species, provide irreplaceable ecological functions, exhibit high flood attenuation and storage capability, or have high ratings for other functions and values.

Category II wetlands are more common than Category I wetlands; they may provide habitat for sensitive plants and animals, function at a high levels for wildlife/fish habitat, or exhibit uniqueness in a given region.

Category III wetlands are more common, generally less diverse, and often smaller and more isolated than Category I or Category II wetlands. They can provide many functions and values, but at a lower level than Category I and II wetlands.

Category IV wetlands are generally small, isolated, and lacking in vegetative diversity. These wetlands provide minor wildlife habitat functions and are often disturbed or adjacent to disturbances such as roads, highways, or crop fields.

Category I wetlands on the Reservation are associated with the Missouri River. These high-quality wetlands include sparsely vegetated

both wetlands and non-wetlands that meet COE criteria. The regulatory definition of wetlands adopted by the COE and Environmental Protection Agency is:

Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The COE has determined that jurisdictional wetlands must have a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology. Recent legal decisions indicate that jurisdictional wetlands must also have a connection to interstate commerce. Generally, wetlands associated with streams are considered to have an interstate commerce connection, but isolated depressional wetlands (e.g., ponds, lakes, and potholes) do not. Although the COE does not consider isolated wetlands to be jurisdictional under the Clean Water Act, the BOR for purposes of impact assessment and mitigation addresses all wetlands in this EA, irrespective of interstate commerce connections.

Non-wetland waters of the U.S. include stream channels (both perennial and intermittent), open water (ponds, lakes, and reservoirs), and other areas that do not support hydrophytic vegetation.

Johnson (1966) distinguishes three general wetland categories that occur in the project area: glaciated wetlands, riparian wetlands, and wetlands created by human activities (e.g., reservoirs, stockponds, and roads). Glaciated wetlands exist in areas where retreating continental glaciers left numerous permanent and semi-permanent prairie wetlands, often referred to as potholes. A high density of these glaciated wetlands occurs in the northeastern portions of Sheridan and Roosevelt counties.

Glaciated wetlands include both saline and freshwater prairie pothole wetlands. Because of variation in water chemistry, prairie potholes have diverse vegetation, structure, and species composition. Riparian wetlands, including cottonwood forest communities are most extensive along major rivers like the Missouri, Milk, and Poplar, and major streams like Big Muddy, Porcupine, Tule, Smoke, and Wolf creeks.

The most common wetland types are classified as palustrine emergent (PEM) and palustrine scrub shrub (PSS), according to the Cowardin system and the HGM classification method. Common wetland plants include cattail, Nebraska sedge, foxtail barley, prairie cordgrass, fowl bluegrass, spike-rush, curly dock, bulrush, snowberry, peachleaf willow, silver sage, wild rose, and plains cottonwood.

Pipelines associated with the proposed project would not cross the Missouri River, an exceptionally important wetland (i.e., Class I); however, the intake structure would have the potential to affect aquatic biota (e.g., paddlefish, blue sucker, sturgeon chub, and sicklefin chub).

Wetlands in the project area were classified as Category I, II, III, and IV based on ecological functions and values (Berglund 1999). Category I wetlands are exceptionally high-quality wetlands and are generally rare to uncommon in the state. These wetlands provide habitat for federally listed threatened, endangered, or candidate species, provide irreplaceable ecological functions, exhibit high flood attenuation and storage capability, or have high ratings for other functions and values.

Category II wetlands are more common than Category I wetlands; they may provide habitat for sensitive plants and animals, function at a high levels for wildlife/fish habitat, or exhibit uniqueness in a given region.

Category III wetlands are more common, generally less diverse, and often smaller and more isolated than Category I or Category II wetlands. They can provide many functions and values, but at a lower level than Category I and II wetlands.

Category IV wetlands are generally small, isolated, and lacking in vegetative diversity. These wetlands provide minor wildlife habitat functions and are often disturbed or adjacent to disturbances such as roads, highways, or crop fields.

Category I wetlands on the Reservation are associated with the Missouri River. These high-quality wetlands include sparsely vegetated

gravel bars and islands that provide nesting habitat for the endangered piping plover and least tern. The endangered pallid sturgeon, several species that are candidates for federal listing (e.g., sturgeon chub and sicklefin chub), and other uncommon Montana species (e.g., spiny softshell turtle, snapping turtle, and white pelican) also inhabit the Missouri River. Forests and wetlands along the Missouri River provide important habitat for white-tailed deer as well as nesting habitat for great blue herons and a diversity of passerine birds. Semi-aquatic mammals such as beaver, muskrat, and mink are common.

Category I wetlands in the Dry Prairie service area associated with the Missouri River, the Milk River, Medicine Lake National Wildlife Refuge, and numerous prairie potholes (e.g., Brush Lake, Salt Lake, Round Lake, Goose Lake, and North Lake). Some of these prairie potholes provide nesting habitat for the endangered piping plover and wetlands at Medicine Lake harbor at least 15 animal species of special concern (Heidel et al 2000). The Milk River within the project area may provide spawning habitat for shovelnose sturgeon, paddlefish, blue suckers, and other native fish species.

Category II wetlands are usually associated with perennial streams or potholes that retain water throughout the year. On the Reservation they include the Poplar River, Wolf Creek, Big Muddy Creek, Smoke Creek, and McIlwain Lake. Category II wetlands in the Dry Prairie service area include the prairie potholes in Sheridan County and wetlands associated with Big Muddy Creek and the Poplar River. These wetlands are important for wildlife habitat, native fish habitat, wildlife species of special concern, sediment/nutrient retention, flood attenuation and storage, and groundwater discharge/recharge. They often support diverse populations of native fish and provide breeding and foraging areas for waterfowl, shorebirds, terns, and wading birds.

Based on the assessment of functions (Berglund 1999), most wetlands in the project area are Category III wetlands. Although some are prairie potholes, most Category III wetlands occur along ephemeral and intermittent drainages. These linear wetlands are often less than 25 feet wide, usually with a narrow channel, and often bordered by native prairie. These wetlands are typically dry for part of the year and often surrounded by agricultural lands.

Most Category III wetlands are palustrine emergent or palustrine scrub-shrub types based on the Cowardin classification system. While these wetlands are important for wildlife habitat, and nutrient/sediment retention, they are rarely used by threatened and endangered species (e.g. whooping crane, bald eagle, peregrine falcon, piping plover and least tern). Common wildlife species associated with them are ring-necked pheasants, red-winged black bird sharp-tailed grouse, northern harriers, coyotes, and red foxes. Waterfowl and shorebirds frequent these wetlands where surface water forms pools.

Category IV wetlands occur at ephemeral drainages and in depressions along highways and roads, including barrow pits. These wetlands are usually dominated by herbaceous vegetation (e.g, cattail, canary reedgrass, quack grass, and rushes. They have low values for wildlife habitat and function primarily as sediment/nutrient traps. Typically, they have water only during part of the growing season and are usually adjacent to roads or cultivated fields.

## WILDLIFE

The combination of native grassland, riparian forest, and wetlands supports a high diversity of wildlife, including mule deer, pronghorn antelope, white-tailed deer, coyote, red fox, striped skunk, badger, ground squirrel, sharp-tailed grouse, Hungarian partridge, prairie falcon, red-tailed hawk, ferruginous hawk, Swainson's hawk, burrowing owl, mourning dove, western meadowlark, long-billed curlew, Baird's sparrow, upland sandpiper, Sprague's pipit, horned lark, western meadowlark, and other songbirds typically found on rangelands and croplands. No prairie dog colonies were observed during project field surveys or are known to occur in the project area.

Rough-legged hawks are common winter residents in the project area, migrating from arctic and sub-arctic regions of North America. Gyrfalcons and snowy owls are also periodic winter visitors, particularly during severe winters in northern Canada.

Northern harriers and American kestrels are the most common raptors in the project area. Northern harriers prefer to nest in marshy areas near water but forage in all habitats. Typically, Swainson's and red-tailed hawks nest in trees and prairie falcons nest on cliffs. Potential Swainson's and red-tailed hawk nesting sites occur in cottonwood trees along drainages, in woody draws, and shelterbelts. There are few cliffs suitable for peregrine and prairie falcon nests in the project area. Sumner (1995) reported two prairie falcon nests, one red-tailed hawk nest, and two golden eagle nests on the Reservation. Butts (1995) observed ferruginous hawks, goshawks, Swainson's hawks, red-tailed hawks, and northern harriers.

Grassland and shrub habitats in the project area provide excellent habitat for sharp-tailed grouse and contain strutting grounds (leks) and nesting habitat. Although no leks have been identified, comprehensive surveys have not been conducted in spring to determine if these courtship areas occur near the proposed project facilities.

Native prairie grasslands in the project area are sought exclusively for breeding by Baird's sparrows, Sprague's pipets, upland sandpipers, bobolinks, burrowing owls, clay-colored sparrows, and long-billed curlews. Many of the remaining grassland areas in the project area are in relatively small, discontinuous blocks surrounded by cultivated land. Due to the loss of native prairie in Canada and the United States, resource agencies and conservation groups are concerned for the viability of these species.

Large parts of the project area have been converted from native vegetation to agricultural fields, primarily on fertile floodplains and upland benches. Most farmland is planted to small grains or is in the Conservation Reserve Program (CRP). Wildlife species associated with farmland and adjacent native habitats include Hungarian partridge, sharp-tailed grouse, ring-necked pheasant, brown-headed cowbird, American goldfinch, horned lark, and red fox.

Wetlands are found along perennial and ephemeral drainages, in association with reservoirs and stock ponds, and in poorly drained depressions. Wildlife species associated with wetlands includes: Canada goose, mallard, black-crowned night heron, chorus frog, and leopard frog. The Missouri, Milk, and Poplar rivers provide habitat for beaver, muskrat, mink, painted turtle, snapping turtle, spiny soft-shell turtle, and white pelican.

Amphibians and reptiles present in the project area include tiger salamander, Great Plains toad, Woodhouse's toad, western chorus frog, northern leopard frog, short-horned lizard, painted turtle, snapping turtle, racer, western hognose snake, smooth green snake, gopher snake, western rattlesnake, common garter snake, and plains garter snake (Reichel and Flath 1995, and Stebbins 1966).

Waterfowl migrate through the area and nest on ponds, reservoirs, and other wetlands. The prairie potholes and associated uplands are important waterfowl breeding habitat. The U.S. Fish and Wildlife Service manages numerous waterfowl production areas in the Medicine Lake- Plentywood area and secures easements on private lands to enhance wildlife habitat.

## ANIMAL SPECIES OF SPECIAL CONCERN

Although not listed as threatened or endangered under the Endangered Species Act of 1973, animal species of special concern are considered by the Montana Natural Heritage Program to be vulnerable to extirpation across their range or across the state due to rarity, significant loss of habitat, or sensitivity to human-caused mortality or habitat disturbances. Species of special concern are listed in **Table 3**.

## FISH

Primary fisheries resources of the project area are the Missouri River, Milk River, Poplar River, Big Muddy Creek, Porcupine Creek, Wolf Creek, Smoke Creek, and Medicine Lake. Species of special concern designated by the state within the project area (**Table 3**) include the paddlefish, blue sucker, pallid sturgeon, pearl dace, shorthead sculpin, shortnose gar, sturgeon chub, sicklefin chub and northern redbelly dace. **Appendix D** lists fish species present in the project area.

**TABLE 3**
**Animal Species of Special Concern**

| Common Name | Scientific Name | Occurrence in Project Area |
|---|---|---|
| Swift fox | *Vulpes velox* | Grassland habitats, not known in project area |
| Preble's shrew | *Sorex preblei* | Sagebrush-grassland habitat in western part of project area |
| Small-footed myotis | *Myotis ciliolabrum* | Cliffs and forest habitat, not known from project area |
| Long-eared myotis | *Myotis evotis* | Cliffs and other rocky habitats, not known from project area |
| Townsend's big-eared bat | *Corynorhinus townsendii* | Caves, rocky outcrops, and abandoned mines, not known from project area |
| Northern myotis | *Myotis septentrionalis* | Caves and mines in forested habitat, not known for project area |
| Ferruginous hawk | *Buteo regalis* | Prairie and shrub habitats, nests in project area on Reservation and near Redstone |
| Burrowing owl | *Speotyto cuniculata* | Nests in prairie dog and ground squirrel colonies, breeds throughout project area |
| White pelican | *Pelecanus erythrorhyncos* | Nests at Medicine Lake |
| Baird's sparrow | *Ammodramus bairdii* | Nests in grassland throughout project area |
| Black tern | *Chilidonias niger* | Nests on wetlands throughout project area |
| Black-crowned night heron | *Nycticorax nycticorax* | Nests at Medicine Lake |
| Caspian tern | *Sterna caspia* | Nests at Medicine Lake |
| Franklin's gull | *Larus pipixcan* | Nests at Medicine Lake |
| Common tern | *Sterna hirundo* | Nests in wetlands in project area |
| Forster's tern | *Sterna forsteri* | Nests at Medicine Lake |
| Mountain plover | *Charadrius montanus* | Nests in grasslands in western part of project area |
| Smooth green snake | *Opheodrys vernalis* | Medicine Lake and Comertown areas |
| Canadian toad | *Bufo hemiophrys* | Wetlands in Daniels County |
| Pearl dace | *Semotilus margarita* | Big Muddy Creek, Wolf Creek, and Poplar River drainage |
| Northern redbelly X finescale dace | *Phoxinus eos X Phoxinus neogaeus* | Wolf, Porcupine, Smoke creeks on the Reservation |
| Shortnose gar | *Lepisosteus platostomus* | Missouri River |
| Blue sucker | *Cycleptus elongates* | Missouri River |
| Ottoe skipper (butterfly) | *Hesperia ottoe* | Native prairie |
| Sturgeon chub | *Macrhybopsis gelida* | Missouri River |
| Pallid sturgeon | *Scaphirhynchus albus* | Missouri River |
| Paddlefish | *Polyodon spathula* | Missouri and Milk rivers |
| Sauger | *Stizostedion canadense* | Missouri, Poplar, and Milk rivers |
| Sickelfin chub | *Macrhybobsis meeki* | Missouri River |

The pallid sturgeon was federally listed as an endangered species in 1990. The sturgeon chub and sicklefin chub were recently petitioned for federal listing; on April 18, 2001, the U.S. Fish and Wildlife Service determined that listing was not warranted at this time.

## MISSOURI RIVER

Fish populations of the Missouri River from its confluence with the Yellowstone River to Fort Peck Dam have been described by Gardner and Stewart (1987) and Bergstedt and White (1997). Fish species in this reach of the Missouri River are listed in **Appendix D**. Sport fish include walleye, sauger, channel catfish, northern pike, shovelnose sturgeon, and paddlefish. Fisheries resource values within the project area are class I (outstanding). Montana species of special concern include the blue sucker, northern redbelly dace, pallid sturgeon, sicklefin chub, sturgeon chub, and shortnose gar. The pallid sturgeon has been federally listed as an endangered species since 1990.

Paddlefish are migratory in the Missouri River between Lake Sakakawea and the Fort Peck Dam (Ryckman 1995). Adult paddlefish move upstream to spawn in the Missouri and Yellowstone rivers and possibly the Milk River (Scarnecchia et al 1994, Gardner 1992) in spring and spawn over gravel bars during high water. Adult paddlefish generally move downstream in early summer to Lake Sakakawea.

The river immediately below the dam is clear and cold, unlike the warm, turbid Missouri that enters Fort Peck Reservoir. The river begins to reassume prairie stream characteristics as it flows east and is joined by the Milk and Poplar rivers that add warmer and more turbid water.

## MILK RIVER

The Milk River supports a diverse fish population (**Appendix D**). Recent fishery work indicates that the Milk River may also be an important spawning stream for Missouri River fish, including paddlefish and shovelnose sturgeon (Fuller 2000).

The lower portion of the river (approximately 65 miles) lies within the project area. The most common forage species in this section are emerald shiners, spottail shiners, and flathead chubs, with larger fish consisting mostly of goldeye, river carpsucker, shorthead redhorse, and common carp (Fuller 2000). Sport fish include walleye, northern pike, sauger, and channel catfish. A spring concentration of shovelnose sturgeon near the mouth of the Milk River may indicate this river is a spawning stream for Missouri River fish (Fuller 2000).

## POPLAR RIVER

Portions of the Poplar River and tributaries provide a significant sport fishery for walleye and northern pike, species introduced to the drainage (Montana FWP 1976 and 1979; Stewart 1981). Fisheries resource values are class IV (moderate) from the mouth to river mile 17.8, class VI (limited) from river mile 17.8 to river mile 78.2, and class II (high-value) from river mile 78.2 to river mile 106.4 (MRIS 2001). Montana species of special concern in the drainage include northern redbelly dace, paddlefish, and pearl dace.

## BIG MUDDY CREEK

Big Muddy Creek forms the eastern boundary of the Fort Peck Reservation. Limited fish sampling indicates that the stream contains black bullhead, blue sucker, burbot, channel catfish, common carp, fathead minnow, goldeye, lake chub, longnose dace, northern pike, northern redbelly dace, river carpsucker, sauger, shorthead redhorse, walleye, white sucker, and yellow perch (MRIS 2001 and Bramblett 2001). Fisheries resource values are class III (substantial) from the mouth to river mile 38.4, class IV (moderate) from river mile 38.4 to river mile 182 and class VI (limited) from river mile 182 to the headwaters (river mile 194.4).

Smoke Creek enters Big Muddy Creek from the northwest within the Reservation boundary. Limited fish sampling indicates the presence of northern pike, white sucker, and a hybrid between northern redbelly and finescale dace (MRIS 2001, Bio-West 1990 and Bramblett 2001).

Northern pike may have populated Big Muddy Creek and tributaries as a result of downstream migration of fish stocked in Medicine Lake (Bramblett 2001) and this efficient predator may be impacting populations of native fish in the Big Muddy Creek drainage.

## WOLF CREEK

Wolf Creek enters the Missouri River near the town of Wolf Point. Limited fish sampling (MRIS 2001 and Gould 1997) found common carp, creek chub, northern pike, pearl dace, a hybrid between redbelly dace and finescale dace, river carpsucker, sauger, smallmouth buffalo, walleye, white sucker, and yellow perch. Fisheries resource values are class IV (moderate) from the mouth to the east fork (river mile 22.8), and class V (limited) from river mile 22.8 to river mile 23.4 (MRIS, 2001). Unpublished data indicates there is an eastern brook trout population near the confluence of the East, West and Middle forks of Wolf Creek and that hatchery-reared rainbow trout have been planted in the stream (Bio-West 1990).

## MEDICINE LAKE

Medicine Lake National Wildlife Refuge consists of 8,700-acre Medicine Lake proper along with numerous wetlands and upland habitats. Medicine Lake is managed as a northern pike fishery and the U.S. Fish and Wildlife Service plants northern pike annually. While there is disagreement as to whether northern pike are native to Medicine Lake, they provide a significant sport fishery. Medicine Lake also has a large carp population.

# THREATENED AND ENDANGERED SPECIES

Species protected under the Endangered Species Act of 1973, as amended, that are known to occur or have the potential of occur in the project area include the bald eagle (threatened), piping plover (threatened), least tern (endangered), pallid sturgeon (endangered), and whooping crane (endangered). Critical habitat has also been proposed in the project area for the piping plover. The Montana Natural Heritage Program database indicates the following federally listed species as being present in the project area.

## PALLID STURGEON

The pallid sturgeon exists in the Missouri River upstream and downstream of Fort Peck Dam. Populations of this fish in Montana are declining, with no evidence of natural reproduction. Pallid sturgeon between Fort Peck Dam and Lake Sakakawea are an important portion of the total population (Tews 1994). Adult fish in this reach are nearing the end of their life expectancy and may attempt reproduction only another time or two (U.S. Fish and Wildlife Service 2000a).

Pallid sturgeon move downstream from below Fort Peck Dam to below the confluence of the Yellowstone and Missouri rivers in summer and tend to return to the Fort Peck tailrace in winter. Most pallid sturgeon have been documented in the Missouri River downstream from its confluence with the Yellowstone rivers (Liebelt 1998). No pallid sturgeon spawning sites have been identified in the Missouri River above the confluence; however, there, may be suitable sites in the Missouri and possibly in the Milk River. It is estimated that 50 to 100 pallid sturgeon remain in the Missouri River above Fort Peck Dam, and 200 to 300 pallid sturgeon remain in the Missouri and lower Yellowstone rivers between Garrison Dam in North Dakota and Fort Peck Dam (Krentz 1997, Gardner 1994).

Mature pallid sturgeon eat primarily of fish and aquatic organisms (Carlson et al 1985). It is believed that immature pallid sturgeon mostly eat benthic invertebrates.

Pallid sturgeon spawn in spring and early summer (from April into July) releasing their eggs at intervals. Spawning is triggered by increased flow from runoff. Increased spring flows also initiate spawning by paddlefish and shovelnose sturgeon. Adhesive eggs are released in deep channels or gravelly riffles and are left unattended. Newly hatched pallid sturgeon become buoyant and active immediately after hatching, floating downstream with the current.

Observations of post-hatch pallid sturgeon in culture conditions (U.S. Fish and Wildlife Services 2000b) indicate that larval sturgeon are poor swimmers that actively swim upward in the water column until exhaustion and then settle and drift. This activity is repeated until the larval sturgeon develop sufficiently to maintain themselves in the current. It is estimated that larval sturgeon drift 33 to 54 miles before developing sufficiently to maintain their position in the current (U.S.D.I. 2001).

The Pallid Sturgeon Recovery Plan (U.S. Fish and Wildlife Service 1993) has identified four priority areas on the Missouri River for recovery actions. These river reaches have remnants of what is believed to be suitable pallid sturgeon habitat, provided the hydrology and chemical elements of the aquatic ecosystem, such as temperature and turbidity, are restored. The recovery priority areas are: (1) from the mouth of the Marias River to the headwaters of Fort Peck Reservoir; (2) from Fort Peck Dam to the headwaters of Lake Sakakawea, including the Yellowstone River; (3) from 20 miles upstream of the mouth of the Niobrara River to the headwaters of Lewis and Clark Lake; and (4) from Gavins Point Dam to the Mississippi River.

Regulated flows from Fort Peck Dam coupled with lower water temperatures during spring and early summer have failed to provide adequate spawning cues for pallid sturgeon in the project area. The U.S. Army Corps of Engineers proposes to modify operations of Fort Peck Dam to provide additional water from the surface of Fort Peck Reservoir to stimulate spawning and optimize spawning habitat for pallid sturgeon and other native fish. A test release was scheduled for 2001, but low reservoir levels precluded the test. If storage levels allow, the test will take place in 2002 and a full release of 19,000 cubic feet per second will occur in 2003. A monitoring program will be in place to evaluate effects of the spill.

In recent years, pallid sturgeon populations have been augmented by release of hatchery-reared fish. In 1994 and 1997, 7,000 and 3,000 fingerlings were released into the Mississippi and Missouri rivers, respectively. In 1998, 745 hatchery-reared yearling pallid sturgeon were released at three sites on the Missouri River above Fort Peck Reservoir and 750 yearling sturgeon were released near the confluence of Yellowstone and Missouri rivers (U.S. Fish and Wildlife Service 2000). Recently, the discovery of iridovirus at the Gavins Point National Fish Hatchery, where pallid sturgeon are being raised, has resulted in cessation of the planting program until the potential impact of the virus can be determined.

## PIPING PLOVER

The piping plover is a small shorebird that occupies sand and gravel bars and beaches along major rivers and around lakes, reservoirs, ponds, and alkali wetlands (Reel et al 1989). Females nest in small depressions scraped in sand and gravel during March and April. Nests are constructed on the higher parts of sandy shores away from the water line and vegetation.

Critical habitat for piping plovers has been proposed along the Missouri River, but this designation has not been finalized (Federal Register Vol 67, No. 55, March, 21, 2002). Proposed critical habitat in the project area includes islands in the Missouri River from the community of Wolf Point downstream to the Montana-North Dakota border. Numerous potholes (usually saline or alkaline) and Medicine Lake in the Dry Prairie service of eastern Sheridan County have also been proposed as critical habitat for piping plover. The critical habitat designation would protect piping plover nesting habitat.

The reach of the Missouri River from Fort Peck Dam to Lake Sakakawea has a small breeding population of piping plovers. The project area is at the western extension of the piping plover's range. Piping plovers have been reported from the following sites on the Reservation (Montana Natural Heritage Program data base): two miles southwest of Wolf Point on a sandbar in the Missouri River (nesting documented); two miles southeast of Poplar on an island in the Missouri River (nesting documented); and three miles downstream from Brockton on a sandbar in the Missouri River.

The Army Corps of Engineers (2001) estimates that there are 50.4 acres of piping plover habitat along the Missouri River on the Reservation. Most of this habitat is between Wolf Point and the eastern border of the Reservation. This acreage is about 22 percent of all piping plover habitat on the Missouri River from Fort Peck Dam to Gavins Point Dam in Nebraska.

About 56 percent (2,725 of 4,824) of the piping plover population on the Missouri River nests outside of Montana on the river below Garrison and Gavins Point dams. Around 16 percent of the piping plovers nest in South Dakota on and Lake Oahe and 15 percent nest on Lake Sakakawea. The remaining 13 percent nest on Fort Peck Lake, the Missouri River below Fort Peck and Fort Randall dams, and on Lewis and Clark Lake (Nebraska) (Army Corps of Engineers 2001).

Piping plovers also nest in the prairie pothole region of Sheridan County, Medicine Lake National Wildlife Refuge, and the vicinity of Comertown in the Dry Prairie service area. Typically, piping plovers nest on the sparsely vegetated shores of depressional wetlands in prairie grasslands. Fort Peck Reservoir is the western edge of piping plover habitat and the westernmost record of piping plover nesting.

## INTERIOR LEAST TERN

Interior least terns are water birds that feed almost exclusively on small fish, crustaceans, and insects they catch by skimming over the

water surface or by hovering and diving from the air (Reel et al 1989). Nesting of these birds has been documented on the Reservation at the following locations (Montana Natural Heritage data base): a sandbar in the Missouri River, two miles southwest of Wolf Point; island in the Missouri River, three miles east of Wolf Point; an island in the Missouri River, two miles southeast of Poplar; six miles southeast of Poplar, along the Missouri River; an island in Missouri River, southwest of Brockton; along the Missouri River, three miles downstream from Brockton; a sandy island in the Missouri River at Brockton;

Like the piping plover, the Army Corps of Engineers (2001) estimates that there are 50.4 acres of least tern habitat along the Missouri River on the Reservation. Most of this habitat is between Wolf Point and the eastern border of the Reservation. This acreage is about 22 percent of all least tern habitat on the Missouri River from Fort Peck Dam to Gavins Point Dam in Nebraska.

About 59 percent (4,201 of 7,064) of the least tern population on the Missouri River nests outside of Montana on the river below Garrison and Gavins Point dams. Around 16 percent of least terns nest on Lake Oahe (South Dakota) and 11 percent nest on the Missouri River downstream from Fort Peck Dam. The remaining 14 percent nest on Fort Peck Lake, Lake Sakakawea (South Dakota), on the Missouri River below Fort Randall Dam, and on the Lewis and Clark Lake (Nebraska).

Fort Peck Reservoir is at the northwestern limit of this tern's breeding range and contains little suitable habitat for breeding terns. The best breeding habitat along the lower portion of the reservoir has been surveyed annually since 1987 (U.S. Fish and Wildlife Service 2000). Biologists located four nests in 1991, the most to date.

The Missouri River from Fort Peck Dam to Lake Sakakawea also lies within the northwestern fringes of the least tern's breeding range. Tern populations on that reach fluctuate with habitat conditions, as they do elsewhere in their range. Numbers peaked in 1997 when other habitat along the Missouri River was inundated (U.S. Fish and Wildlife Service 2000).

Flows that scour vegetation from sandbars and build sandbars create least tern habitat on the Missouri River. Construction of Fort Peck Dam has altered these conditions by reducing the frequency of flooding downriver and minimizing sediment deposition. Erosion and inflows from the Milk River have formed sandbars below its confluence with the Missouri as a result of deposition of suspended sediment. Sandbars have formed below the Milk River confluence as a result of deposition of suspended sediment. The Poplar River also transports a considerable amount of suspended fine sediments.

## BALD EAGLE

No known bald eagle nests have been reported on the Reservation by the Montana Natural Heritage Program (search of data base). Bald eagles are most frequently observed on the Reservation along the Missouri River during winter and spring, where they are migrants. Bald eagles typically are attracted to open water in winter because potential prey (i.e., fish and waterfowl) is present and available. Bald eagles also prey on jackrabbits and feed on carrion (livestock and wildlife), especially deer killed by vehicles. No known communal roosts or dense feeding concentrations of eagles are known for the project area.

Of the more than 170 bald eagle nesting territories in Montana, at least 29 occur along the Missouri River above Fort Peck Reservoir. However, breeding records below Fort Peck are scarce, although parts of the floodplain have suitable habitat (i.e., large cottonwood trees and snags). The Montana Bald Eagle Management Plan identifies a need for three additional territories in this area. The only bald eagle management zone in Montana that has not met recovery goals established in the Pacific Bald Eagle Recovery Plan encompasses the Missouri River.

Montana ranks in the top 15 states in total numbers of wintering eagles. Wintering populations on the Missouri River in Montana between 1993 and 1999 have ranged from a low of 54 in 1987 to a high of 171 in 1999 (U.S. Fish and Wildlife Service 2000).

### WHOOPING CRANE

Whooping cranes breed in Wood Buffalo National Park in Northwest Territories, and winter along the Texas coast, primarily at the Arkansas National Wildlife Refuge. Some whooping cranes migrate through the northeastern part of Montana, including the Reservation in spring and fall. According to Berglund (1997), two whooping cranes were seen near Fort Peck Dam and in Sheridan County in 1994. During migration, whooping cranes rest at wetlands and feed on cultivated grains.

## SOCIOECONOMIC CONDITIONS

### SOCIAL LIFE AND DEMOGRAPHICS

The social and economic character of the project area reflects differences in ethnicity, economic conditions, and culture between the Fort Peck and Dry Prairie service areas. Reservation lifestyles are dominated by American Indian culture and values, while non-Indian culture and values dominate off-Reservation everyday life.

Traditions practiced among the Native people on the Reservation, such as sweats, give-aways, sun dances, songs, and dances, have been passed down from generation-to-generation. More celebrations (pow wows) are held on the Fort Peck Reservation than any other reservation in Montana. In the spring and early summer, many tribal members gather berries, wild turnips, and other edible plants for family meals and special feeds throughout the year.

The loss of potable well water in some rural areas of the Reservation changed the lifestyles of the affected families. Some families have had to purchase bottled water for in-home use and haul water for livestock consumption. Gardens, once relied upon as a source of fresh vegetables and food for canning and drying, can no longer be grown in areas where good-quality water for irrigation is no longer available.

Off the Reservation, the social environment is typical of rural lifestyles of the Great Plains. Farming and ranching families, some descendants of original settlers, provide a dominant social influence in the sparsely populated Dry Prairie service area.

The total population of the four-county project area in 2000 was 24,417. Roosevelt County had the highest population (10,620), followed by Valley County (7,675), Sheridan County (4,105), and Daniels County (2,017). The Reservation population was 10,321 (U.S. Bureau of the Census 2001a).

Sixty-two percent of the 10,321 people residing on the Reservation are American Indian, mostly of the Sioux and Assiniboine tribes. Fifty-six percent of the population in Roosevelt County is American Indian, reflecting the high percent of Indian population on the Reservation. American Indians represent a much smaller portion of the population in Sheridan (1.2 percent), Daniels (1.3 percent), and Valley (9.4 percent) counties (U.S. Bureau of the Census 2001a).

Population of the Reservation is young compared with the Dry Prairie service area. Median age on the Reservation was 30.2 years old in 2000, while, in Roosevelt County, median age was 32.3 years, 41.7 years in Valley County, 45.1 years old in Sheridan County, and 47.0 years in Daniels County (U.S. Bureau of the Census 2001a).

The major source of income in Roosevelt and Valley counties is government, whereas the major industry in Sheridan and Daniels counties is agriculture. Average annual unemployment rates in 2000 in the four-county area ranged from a low of 3.0 percent in Daniels County to a high of 9.5 percent in Roosevelt County.[1] Unemployment rates in Valley and Sheridan counties were 4.1 percent and 4.4 percent, respectively (Montana Department of Labor and Industry 2001).

Estimated percent of people of all ages in poverty in the state was 15.7 percent in 1998.

[1] The unemployment rate for Roosevelt County, including the Fort Peck Reservation, was based on the Montana Department of Labor and Industry definition of "unemployed" that includes all people able, available, and actively seeking work within a specified boundary. The Bureau of Indian Affairs (BIA) includes "discouraged workers" (people who are unemployed, but may not be actively seeking work) in the definition of "unemployed," thus the BIA unemployment rates may be considerably higher than the rates reported by the Montana Department of Labor and Industry (Shenkle 2001).

Roosevelt County had the highest percent of people in poverty of the four-county project area with 31.7 percent, followed by Valley County (18.7 percent), Daniels County (15.6 percent), and Sheridan County (13.7 percent) (U.S. Bureau of the Census 2001b).

As reflected by 2000 Census data, the extended family is an important part of the Native American culture and daily life. Average household size was lowest in Daniels County (2.22 persons/household) among the four counties and highest in Roosevelt County (2.89 persons/household). Similarly, percent of "other relatives" present in households was lowest in Daniels County (1.4 percent) and highest in Roosevelt County (8.7 percent). On the Reservation, average household size was 3.01 and percent of "other relatives" present in households was 9.6 percent (U.S. Bureau of the Census 2001a).

## COMMUNITY SERVICES

Law enforcement in the project area is provided by federal (Fort Peck Tribal Police), state (Montana Highway Patrol), county (Roosevelt, Daniels, Valley, and Sheridan county sheriff's departments), and city (Poplar, Wolf Point, Glasgow, Scobey, Fort Peck, Plentywood, and Nashua police departments). The Highway Patrol is responsible for patrol and other law enforcement activities on Montana highway systems, the sheriff's departments are accountable for their respective counties including unincorporated towns within the counties, the city police departments are responsible for their respective city limits, and the Fort Peck Tribal Police is accountable for law enforcement on the Fort Peck Reservation. Total number of sworn officers per 1,000 population of the four-county project area in 2000 was as follows: Daniels County (1.0 sworn officers/1,000 population), Roosevelt County (1.61 sworn officers/1,000 population), Sheridan County (2.15 sworn officers/1,000 population), and Valley County (1.80 sworn officers/1,000 population). The statewide average was 1.45 sworn officers/1,000 population (Montana Board of Crime Control 2001).

Ambulance services in the project area are: Roosevelt County (Roosevelt Memorial Medical Center Ambulance in Culbertson, Fort Peck Tribal EMS in Poplar, and Northeast Medical Health Services Ambulance in Wolf Point), Valley County (North Valley EMS Inc. in Opheim, STAT Ambulance and Air Service in Glasgow, and St. Marie Bls NTU in Glasgow), Sheridan County (Sheridan Memorial Ambulance Service in Plentywood), and Daniels County (Daniels County Ambulance Service in Scobey) (Montana Department of Public Health and Human Services 2002). Critically ill or injured patients in the project area needing emergency hospitalization are transported to the nearest hospital (Frances Mahon Deaconess Hospital in Glasgow, Trinity Hospital/Northeast Montana Health Services Inc. in Wolf Point, Poplar Community Hospital/Northeast Montana Health Services Inc., Roosevelt Memorial Medical Center in Culbertson, Daniels Memorial Hospital in Scobey, and Sheridan Memorial Hospital in Plentywood). For specialized emergency care not available in the project area, many patients are air transported to hospitals in Billings or North Dakota.

## TEMPORARY HOUSING

Permanent and temporary housing are limited on the Fort Peck Reservation, but more are available in other parts of the project area. In 2000, the homeowner vacancy rate on the Reservation was 1.6 percent and the rental vacancy rate was 5.3 percent. In the four-county project area, the homeowner vacancy rate ranged from a high of 6.5 percent in Valley County to a low of 1.2 percent in Roosevelt County, whereas the rental vacancy rate ranged from a high of 19.8 percent in Sheridan County to a low of 7.9 percent in Valley County (U.S. Bureau of the Census 2001a).

Privately owned mobile home and recreational vehicle (RV) parks in the project area had a total of 478 state-licensed spaces in July 2001. Of the 478 spaces, 52 percent were in Glasgow (Valley County), 13 percent were in Plentywood (Sheridan County), and the remaining 35 percent were dispersed throughout other communities within the four counties (**Table 4**). Public campgrounds are primarily near Fort Peck Reservoir.

During the scoping process, concerns were expressed about the capacity of temporary housing (e.g., motels, hotels, and rooms) in the project area being sufficient to provide accommodations for FPRRWS project workers

and other temporary visitors staying in the project area. A temporary housing inventory was conducted to determine the number of licensed hotel and motel rooms in the project area and in the city of Williston, North Dakota, nearby, but outside of the project area boundaries.

Results of the temporary housing inventory showed 639 motel/hotel/tourist rooms in the project area during July 2001 (**Table 4**). The majority (41 percent) of the rooms for rent were located in Glasgow (located in Valley County), followed by 19 percent in Wolf Point (Roosevelt County), and 14 percent in Plentywood (Sheridan County).

Williston, North Dakota, located in the northwestern corner of North Dakota approximately 19 miles from the Montana state border, is a major trade center for residents of the project area. The city of 13,500 people offers more services and has a more abundant supply of temporary and permanent housing than the project area. Over 500 motel/hotel rooms and a number of mobile home and RV parks are available (Williston Convention and Visitor Bureau 2001).

## HIGHWAY TRAFFIC

Death by all accidents is the third leading cause of death in Roosevelt County. The three-year (1998-2000) average number of deaths from motor vehicle accidents in the four-county project area ranged from a low of 1.3 in Daniels County to a high of 7.7 average number of deaths a year in Roosevelt County. In Sheridan County, the three-year average number of deaths from motor vehicle accidents was 2.7 and 6.0 in Valley County (Montana Department of Public Health and Human Services, Vital Statistics Bureau 2002).

On Highway 2, from Glasgow to the North Dakota border, 81 accidents were reported to the Highway Patrol in 2000, an increase of 20 accidents from 1998. The number of non-fatal accidents occurring on highways on the Reservation may be under-reported; however, fatalities are always reported to the Highway Patrol (Williams 2002). Number of accidents in 2000 on other highways in the project area included Highway 24 (Glasgow to Opheim), 10 accidents; Secondary Highway 248 (Opheim to Scobey), 4 accidents; Highway 5 (Scobey to Plentywood), 17 accidents; Highway 16 (Highway 2 to Plentywood), 14 accidents; Highway 13 (Highway 2 to Scobey), 7 accidents (Montana Department of Transportation 2001).

**TABLE 4**
**Privately Owned Mobile Home/RV Park Spaces and Motel/Hotel/Tourist Rooms**

| County/City | Mobile Home/RV Spaces | Motel/Hotel Rooms |
|---|---|---|
| Roosevelt County | | |
| Bainville | 6 | 6 |
| Culbertson | 42 | 30 |
| Poplar | 12 | 35 |
| Wolf Point | 44 | 124 |
| Froid | 6 | 0 |
| Sheridan County | | |
| Medicine Lake | 2 | 8 |
| Plentywood | 62 | 90 |
| Westby | 0 | 1 |
| Valley County | | |
| Fort Peck | 20 | 32 |
| Glasgow | 248 | 264 |
| Nashua | 20 | 0 |
| Opheim | 0 | 7 |
| Vandalia | 0 | 3 |
| Daniels County | | |
| Scobey | 16 | 39 |

Source: Montana Department of Public Health and Human Services, Food and Consumer Safety Section, July 2001, County License Listing for Motels/Hotels and Mobile Home Courts/Campgrounds.

# CULTURAL RESOURCES

Cultural resources are archaeological, historic, architectural properties, buildings, structures, objects, and districts, as well as properties of traditional cultural importance to living communities.

Cultural properties can be historic, prehistoric, or both prehistoric and historic in age. Historic properties are cultural properties that meet the criteria for significance and integrity established by the Secretary of the Interior and are eligible for listing on the National Register of Historic Places.

Some traditional cultural resources are cultural properties that are eligible for inclusion in the National Register of Historic Places because of their association with cultural practices or beliefs that are rooted in a community's history and are important in maintaining the community's cultural identity. Not all traditional cultural properties are eligible for listing in the National Register. To be eligible, traditional cultural properties must also meet the National Register criteria for significance and integrity.

The Montana Antiquities Act stipulates that state agencies adopt rules to avoid adversely affecting cultural resources, if state actions or state-assisted or licensed actions would substantially alter heritage properties or paleontological remains on lands owned by the state. Heritage properties are synonymous with historic properties under the federal mandates and must have significance and integrity determinations specified under the National Register of Historic Places.

Class I cultural resource surveys have been completed for the Reservation (Stan Wilmoth, Montana SHPO, pers. com. 2001) and the Dry Prairie service areas (Brumley and Brumley 1999). Class I surveys are reviews of existing information of cultural resources that are known to exist in the vicinity of the proposed project. They are not comprehensive, since studies have not been done on many parts of the project area. They include sites that may not be affected by the project because the sites are some distance from the proposed disturbance.

Prior to project construction, site-specific (Class III) surveys portions of the project area would be conducted to identify cultural resources that could be affected. Tribal, allotted, and private lands in the Fort Peck Reservation and private lands in the Dry Prairie service areas to be subjected to Class III surveys, would be determined by the Fort Peck Tribes, Bureau of Reclamation, Bureau of Indian Affairs, and Dry Prairie Rural Water Authority. All federal lands managed by the Bureau of Land Management and U.S. Fish and Wildlife Service would have Class III surveys prior to constructing project facilities on federal lands.

## FORT PECK RESERVATION SERVICE AREA

There are about 360 known cultural resources sites on or near the Fort Peck Reservation service area. Of these, 130 are historic sites such as irrigation systems, railroads, stage routes, residences and other buildings, and pioneer dugouts and homesteads. There are about 225 prehistoric sites, including tipi rings, cairns, hearths, rock alignments, rock art, and scatter of lithic debris. The most numerous prehistoric sites are cairns and tipi rings. Very few sites have been evaluated to determine if they qualify for listing on the National Register of Historic Places.

Almost all of the known cultural sites on the Reservation occur in the vicinity of Highway 2 or along the Northern Border Pipeline. Most other areas of the Reservation (more than 90 percent) have not been surveyed for cultural resources.

## DRY PRAIRIE SERVICE AREA

Like the Fort Peck Reservation service area, less than 10 percent of the Dry Prairie service area has been surveyed for cultural resources. There are 211 known cultural sites in the Dry Prairie service area. Of these known sites, 148 are historic properties relating to Euro-American settlement (e.g., buildings, railroads, bridges, mining, and irrigation) and 63 are prehistoric properties (e.g., tipi rings, cairns, and lithic scatter) associated with Native American occupation.

Of the 211 cultural properties, three are listed on the National Register of Historic Places, five are

eligible for National Register, and six have been determined ineligible. There has been no determination of eligibility for the remaining 197 cultural properties.

## LAND USE

Land use in the project area is primarily agricultural (crop and livestock production), with small communities and individual homes and farms interspersed. Typically, most residents in the project area live in communities. Some individual families occupy residences outside of communities on farms and ranches. Water availability often limits where residents choose to live.

Croplands primarily produce small grains and hay or are idle in the Conservation Reserve Program. Native rangeland and planted pastures provide forage for livestock. Currently, livestock obtain water from dugouts, wells, and surface waters. At some locations, livestock use of rangeland is reduced due to lack of water. Adequate distribution of water allows rangelands to be grazed more uniformly and often increases forage.

## ENVIRONMENTAL JUSTICE

Executive Order 12898 directs federal agencies to identify and address disproportionately high adverse human health or environmental effects of its programs, policies, and activities on low-income and minority populations. Environmental justice issues were identified through public involvement and scoping.

In preparation of this EA, public input from persons or groups, regardless of race, income status, age, or other socioeconomic characteristics was considered. Public scoping meetings were held on the Reservation. The purpose of the meetings was to explain the proposed action and alternatives to gain input from the public. Individuals expressed concern about who (Indians or non-Indians) would be served by the water project and who (Indians or non-Indians) would pay monthly water bills.

Census data for the study area reveal socioeconomic characteristics of the Reservation to be different from the state as a whole. Unlike the state at large where the majority of the population consists of non-Indians, Indians make up about 54 percent of the Reservation population.

The percentage of families below the poverty level is significantly higher on the Reservation (45.3 percent) than the state as a whole (15.6 percent). The high percentage of families below the poverty level on the Reservation is due to an unemployment rate of 30 percent, compared with the statewide unemployment rate of 7 percent.

## INDIAN TRUST ASSETS

Indian Trust Assets (ITAs) are "legal interests in property held in trust by the United States for Indian tribes or individual Indians" (memo, Commissioner, Bureau of Reclamation, July 2, 1993). The Secretary of the Interior is the trustee for the United States on behalf of Indian Tribes. ITAs include land, minerals, timber, ethnobotanical resources, hunting and fishing rights, water rights, and in-stream flows. During the NEPA process, the Bureau of Reclamation, as the representative of the Secretary of the Interior, must evaluate whether a proposed action may affect ITAs. This policy reaffirms the legal trust relationship and the government-to-government relationship between the Secretary of the Interior and Indian tribes.

# 4.0 ENVIRONMENTAL CONSEQUENCES

An important assumption in analyzing potential effects of the No Action Alternative is that this alternative would not provide an adequate source of potable water for the project area; consequently, communities and individuals would continue ongoing attempts to obtain water for municipal, rural, and industrial uses. Without the proposed FPRRWS project, individuals and communities would drill additional wells, acquire new or upgrade existing water supply and distribution systems, and continue to haul water.

Continued efforts to obtain potable water would likely occur at many sites throughout the project area and involve many individuals attempting to satisfy their water needs in a variety of ways. These activities would have the potential to affect the natural and physical environment and would have associated costs. Because it is not possible to predict site-specific future activities that would likely be associated with the No Action Alternative, potential impacts for this alternative are addressed in a general manner in the following sections.

## TOPOGRAPHY, GEOLOGY, AND SOILS

### EFFECTS OF PROPOSED ACTION

Activities that would disturb the surface include excavation and leveling of sites for pumping stations, water reservoirs, and other structures; temporary access roads; and installation of pipelines. Pipelines would traverse a linear distance of 3,191 miles. Assuming an average construction right-of-way of 25 feet (construction right-of-way would vary depending on pipe size from 50 feet for the largest pipe to less than three feet for the smallest pipe), approximately 9,669 acres would be disturbed. Pipe would be installed by trenching at least six feet beneath the surface to prevent freezing.

The proposed action would cause short-term soil disturbance with the potential for minor soil erosion by wind and water. Modern pipeline installation equipment such as pipe plows would reduce disturbance. Best-management practices during pipeline construction can prevent most erosion from normal storm events. Significant sheet, rill, and gully erosion could occur if intense rainstorms or snowmelt coincide with construction activities that remove vegetation. Slope stability is not likely to be a concern unless slopes are over-steepened or soils with high-clay content become saturated.

The corrosive quality of most soils in the project area presents a problem for steel pipe installation. This problem would be overcome by using coated steel pipe and cathodic protection.

Pipeline installation on prime farmland soils could cause short-term soil erosion and compaction. These effects would be eliminated by cultivation and natural freeze-thaw cycles. Because pipeline depth would be approximately seven feet, prime farmland soils could continue to be farmed. The presence of pipelines would not affect their designation as prime farmlands.

Long-term impacts to soils generally would be negligible, with required rehabilitation and revegetation (see Section 5.4 Environmental Commitments). Well-vegetated soils on level or sloping ground (i.e., slopes less than five percent) would have little risk of erosion and slumping.

### EFFECTS OF NO ACTION

The No Action Alternative would disrupt soils through additional drilling of wells and through expansion of existing or construction of new water treatment and distribution systems. The existing demand for water would lead to widespread attempts by individuals and communities to secure water which could adversely affect surface waters through sediment production.

## WATER RESOURCES

### EFFECTS OF PROPOSED ACTION

The proposed project would divert about 6,202 acre-feet from the Missouri River annually, about 0.09 percent of the river's annual discharge.

During periods of low flow (e.g., 5000 cfs), diversion for the project would take about 0.18 percent (9 cfs) of the water in the Missouri River.

Pipelines would cross perennial and ephemeral drainages and wetlands, resulting in minor, short-term increases in suspended sediment concentrations near construction sites. Adverse effects would be negligible with required avoidance, mitigation, and reclamation (see Section 5.4 Environmental Commitments).

### EFFECTS OF NO ACTION

The No Action Alternative would result in drilling of new wells, upgrading and expansion of existing facilities that divert Missouri water, and continued water hauling. Groundwater pumping would likely increase and most groundwater would be subjected to expensive treatment to remove nitrates and other impurities.

## VEGETATION

### EFFECTS OF PROPOSED ACTION

Vegetation would be removed during installation of water pipelines and construction of facilities such as pump stations, reservoirs, and electrical distribution lines. Following construction, pipeline rights-of-way would be recontoured and reseeded with native species; however, permanent facilities (e.g., treatment plant, pumping stations, and storage tanks) would remain unvegetated for the life of the project.

The project area is located in prairie habitat; therefore, few trees would be removed during construction. Most of the land that would be disturbed by construction and operation is rangeland vegetated by prairie grasses and broad-leaved herbaceous plants. Following construction, segments of pipeline that have a construction right-of-way five feet wide or more would be seeded with a mixture of native grasses that establish quickly to stabilize soils and prevent proliferation of noxious weeds.

Assuming the project area is 30 percent native prairie, it likely that about 957 miles of native prairie (2,900 acres) would be crossed by the pipeline distribution system within the Fort Peck and Dry Prairie service areas.

In riparian areas, construction could remove cottonwoods, willows, other trees and shrubs, as well as herbaceous species. Following construction, sod-forming, non-native species such as smooth brome and Kentucky bluegrass probably would rapidly invade, become established, and stabilize riparian soils. Pothole and marsh vegetation dominated by cattail, bulrush, and other wetland species would quickly recover from disturbance. Plants adjacent to the disturbed portion of the right-of-way would provide seed or invade through roots and rhizomes. Seeding with native species adapted to wetland conditions would enhance re-establishment of riparian and wetland plant communities. Effects on vegetation would be negligible with required avoidance, mitigation, and monitoring (see Section 5.4 Environmental Commitments).

Executive Order 13112 directs federal agencies to prevent and control the introduction and spread of invasive species (in this project, noxious weeds). Under this executive order, federal agencies cannot authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species, unless all reasonable measures to minimize risk have been analyzed and considered. Noxious weeds are highly efficient at colonizing areas from which native vegetation has been removed or disturbed. Where noxious weeds grow adjacent to the right-of-way, they could rapidly invade and displace seeded plants. Construction vehicles could also bring noxious weeds into the project area or spread them to parts of the project area that are currently weed free.

The risk of spreading noxious weeds would be prevented by requiring that contractors arrive at construction sites with clean, weed-free equipment and control weeds in a manner specified in county weed management plans. Monitoring noxious weeds and treating them prior to, during, and following construction would help reduce their spread.

### EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems would disrupt native prairie,

croplands, and riparian areas. Soil disturbance associated with this alternative would increase the spread of noxious weeds.

# WETLANDS

## EFFECTS OF PROPOSED ACTION

Wetlands would be affected by construction of the water intake structure and buried pipelines. Pipelines would cross wetlands usually associated with perennial and ephemeral/intermittent streams, poorly drained depressions, and stock ponds. Excavation of a six-foot-deep trench, placement of the pipe in the trench, followed by refilling the trench with soils excavated from the wetland would disturb vegetation and generate sediment. Surface waters in wetlands would have increased sediment and turbidity levels during and following construction until vegetation becomes established and substrates stabilize.

Impacts to wetlands from construction would be relatively short term (i.e., during construction and one or two years following construction). Typically, if soils and associated vegetation removed during excavation are segregated and replaced in original sequence, regrowth of vegetation is rapid. Most ecological functions and values degraded as a result of the project would be restored within a year or two of construction.

It is not possible to accurately predict acreage of wetlands that would be affected by the project because precise locations of facilities have not been surveyed and wetland locations verified on the ground. However, based on analysis of NWI maps (scale 1: 24,000) and field-survey data, approximately 195 wetlands in the Reservation service area and 252 wetlands in the Dry Prairie service area would be filled or partially filled during construction of the FPRRWS. Linear distances of wetlands that would be affected by the Reservation and Dry Prairie service areas are 6.1 miles and 5.5 miles, respectively.

Approximately 18.5 acres of wetlands (assuming a 25-foot-wide construction right-of-way) would be crossed by the pipeline system in the Reservation service area. Larger wetlands that would be crossed include those associated with the Poplar River, Muddy Creek, Little Porcupine Creek, Wolf Creek, Smoke Creek, Tule Creek, Snow Coulee, and McIlwain Lake.

Approximately 16.7 acres of wetlands would be crossed by the pipeline system in the Dry Prairie service area. Some of the larger wetlands that would be affected are associated with Porcupine Creek, Hell Creek, Snow Coulee, Smoke Creek, Medicine Lake, and prairie potholes in the Dagmar-Westby area.

Most of the wetlands that would be affected by the project are narrow, linear wetlands associated with intermittent drainages; consequently, they have water for only a portion of the year and do not support important fisheries.

Disturbance of wetlands would be avoided where possible. Where unavoidable, construction would be delayed until after July 15 to protect duck nests and broods.

To avoid or mitigate potential impacts in riparian and wetland areas, construction would be timed to coincide with dry periods when water tables are low. Hard plugs or bentonite breakers would be installed in the pipeline trench to prevent wetland drainage through migration of water along the ditch. Effects to wetlands would be negligible with required avoidance, mitigation and monitoring (see Section 5.4 Environmental Commitments).

## EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems would disrupt wetlands.

# WILDLIFE

## EFFECTS OF PROPOSED ACTION

The proposed project would result in direct loss of wildlife habitat used for hiding cover, foraging, breeding sites, nesting cover, and thermal cover. Construction of pipelines, pumping stations and other facilities would directly remove or degrade habitat. Wildlife species dependent on lost habitat would die or be displaced. Displaced

animals may be incorporated into adjacent populations. Depending on variables such as species, behavior, density, and habitat, adjacent populations may experience increased mortality, decreased reproductive rates, or other compensatory or additive responses. In addition to loss of habitat, wildlife species would be displaced from unaltered habitat during construction.

Construction activities would result in direct mortality to species with limited mobility (e.g., mice, voles, reptiles, amphibians, and young birds). More-mobile species such as deer, coyotes, and adult birds move into undisturbed adjacent habitat. Levels of mortality associated with the project would not affect the viability of local or regional wildlife populations.

The loss of migratory birds and their nests from the proposed action would result from construction through native prairie and CRP fields, pastures, and riparian areas. Losses could be minimized by timing construction to avoid the period when birds are nesting and rearing young (May 1 through mid-August) or by avoiding known nest sites; however, it may not be practicable to entirely avoid impacts to all migratory birds. According to Executive Order 13186 (Protection of Migratory Birds), adverse effects on migratory birds must be minimized to the extent practicable and should include restoration and enhancement of habitat, development and implementation of conservation plans, and other measures to minimize mortality to migratory birds. Losses of small numbers of migratory birds with the proposed action would not jeopardize the viability of local or regional populations.

Potential impacts to wildlife would result primarily from construction activities. Impacts to big game species (e.g., mule deer, white-tailed deer, and antelope) would be minor and short term.

Increased traffic during construction would cause slight increases in direct wildlife mortality from vehicle-wildlife collisions.

Sharp-tailed grouse leks (i.e., courtship breeding grounds) and nesting habitat could be affected where pipelines are constructed through grasslands and upland coulees. Sharp-tailed grouse would be especially vulnerable to construction activities in spring when birds are concentrated on strutting grounds. Disturbance to courtship and breeding would be minimized by delaying construction until after birds have left the leks (usually by mid May).

Human disturbance may cause birds of prey (raptors) to desert their nests. Impacts to nesting raptors would be minimized by timing construction to avoid critical incubation and fledging periods (April through July).

Construction in and near wetlands could destroy waterfowl nests and young. Impacts to nesting waterfowl could be avoided by delaying construction until after the young leave the nest in June. Effects to wildlife and wildlife habitat would be negligible with required avoidance, mitigation, and monitoring (see Section 5.4 Environmental Commitments).

### EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems would disrupt wildlife habitat and displace wildlife from drilling and construction sites.

## FISHERIES

### EFFECTS OF PROPOSED ACTION

Effects to fisheries could occur where pipelines cross rivers, streams, and lakes and at the water intake on the Missouri River. Localized impacts from increased sedimentation could occur during and immediately following construction. These impacts would be minor and short term. Typically, streams in the project area have high sediment levels to which resident fish have adapted.

The intake would pose a negligible risk to most fish because water velocities would not exceed 0.5 feet per second and the intake would be screened with 0.25-inch (6.4-millimeter) mesh to prevent entrainment of fish. The intake may entrain larval fish, fish eggs, and other small aquatic organisms (e.g., insects, crustaceans and algae).

Because the intake would be constructed in the deepest part of the river, larval fish and eggs that typically reside near the bottom of the water column would most likely be affected. Water withdrawal would have the greatest probability of affecting shovelnose sturgeon, paddlefish, channel catfish, burbot, sicklefin chub, sturgeon chub, blue sucker, sauger, and walleye (Montana Department of Natural Resources and Conservation 1999).

Egg sizes for these species range from 1.3 to 3.7 millimeters (Scott and Crossman 1979); larval fish would be larger depending on their age. Because larval fish have not developed fully functional fins in the early stages of development the current carries them downstream. Until they grow larger than the size of the mesh openings or develop to avoid the current, they could be drawn into the water intake. The extent to which this would occur would probably not affect fish populations in the Missouri River since natural mortality to fish eggs and larvae is high under natural conditions. Entrainment of larval fish and fish eggs would be negligible.

Entrainment of zooplankton and phytoplankton is not a substantial concern with the proposed water intake. These organisms do not represent a limiting factor for fish production in the Missouri River, and losses through entrainment would not be large enough to affect fish populations.

The potential for entrainment of small fish and fish eggs at the water intake would be reduced by screening the intake and designing the intake so that water velocities at the intake do not exceed 0.5 feet per second.

Prior to construction, the Natural Streambed and Land Preservation permits would be acquired. These permits incorporate recommendations of Montana Fish, Wildlife & Parks and conservation districts to minimize impacts to fish and other aquatic life. Effects to fisheries would be negligible with required avoidance, mitigation, and monitoring (see Section 5.4 Environmental Commitments).

### EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems could affect fisheries if sediment from drilling or construction enters streams or other surface waters with fish populations. Existing facilities that withdraw water from the Missouri River would continue to operate and could expand if the FPRRWS project is not constructed. These facilities would continue to have the potential to entrain fish eggs and larval fish.

## THREATENED AND ENDANGERED SPECIES

### EFFECTS OF PROPOSED ACTION

The Proposed Action would not affect critical habitat (i.e., habitat specifically designated under the Endangered Species Act of 1973) for federally listed species, although habitat known to harbor listed or candidate species is present in the project area. See Biological Assessment attached as **Appendix H**.

#### Pallid Sturgeon

The Proposed Action would not be likely to adversely affect pallid sturgeon during construction and operation. Because there are no known spawning areas for pallid sturgeon downstream from Fort Peck Dam, increased sediment during construction of the water intake at Poplar would not likely affect fish eggs or larval fish because they would not be present during the low-flow, construction period. Adult pallid sturgeon are adapted to high sediment levels in the river and would avoid the construction area if sediment levels were higher than they could tolerate.

The primary concern with pallid sturgeon is uptake of juvenile (larval) fish by the water intake in the Missouri River. It is generally believed that pallid sturgeon have not successfully spawned in the Missouri River upstream from the proposed intake at Poplar since construction of the Fort Peck Dam due to altered stream flows and reduced sediment

levels. Under current operating conditions of Fort Peck Dam, it is unlikely that pallid sturgeon eggs and juvenile fish would be present in the vicinity of the proposed intake.

With proposed operational changes at Fort Peck Dam to encourage reproduction of pallid sturgeon (i.e., spring releases of larger volumes of water from the top of the reservoir), it is possible that pallid sturgeon could find suitable spawning sites in the Missouri or Milk rivers upstream of the proposed water intake at Poplar. If this were to happen, it is possible that the current could carry larval fish downstream to Poplar. Because pallid sturgeon eggs are adhesive, they would likely become attached to bottom substrates at or near the spawning sites. Upon hatching, young sturgeon could be carried by the current to the vicinity of the water intake.

The proposed water intake at Poplar would extend about six feet above the river bottom (**Figure 2**) and is designed to prevent uptake of juvenile pallid sturgeon and other species of fish. The mesh over the intake would have openings no larger than 0.25 inches (6.4 millimeters), with intake water velocities less than 0.5 feet per second. While the intake would not likely take in juvenile pallid sturgeon, it could entrain larval pallid sturgeon. Because of buoyancy of young pallid sturgeon, larval pallid sturgeon may not be present in the deepest parts of the stream where the intake structure would be located.

Because it is uncertain if modification of Fort Peck dam operations would successfully stimulate pallid sturgeon to reproduce, assessing future effects is speculative. It is also uncertain as to where pallid sturgeon would spawn, if changes in dam operation were to induce spawning.

Because of uncertainties concerning the presence of larval pallid sturgeon or eggs, the intake structure would be monitored annually between May 1 and June 15 by passing volumes of water from the intake through a mesh and collecting larval fish and eggs. Fish and eggs retained by the mesh would be identified to species and counted. Annual monitoring reports would be prepared by the project sponsors and submitted to the USFWS. If pallid sturgeon or their eggs are found during intake monitoring, consultation will be reinitiated under the Endangered Species Act. With design of the intake structure to avoid entrainment of larval fish and eggs and annual monitoring, the Proposed Action **would not be likely to adversely affect pallid sturgeon.** See Section 5.4, Environmental Commitments, for avoidance, mitigation, and monitoring.

## Piping plover

Critical habitat for piping plovers has been proposed along the Missouri River, but this designation has not been finalized. Proposed critical habitat in the project area would include islands in the Missouri River from the community of Wolf Point downstream to the Montana-North Dakota border. Numerous potholes and Medicine Lake in the Dry Prairie service, in northeastern Sheridan County, have also been proposed as critical habitat for piping plover.

Piping plovers nest at some prairie potholes in Sheridan County (i.e., Medicine Lake -Westby-Plentywood area) that would be near the proposed pipeline system for the FPRRWS. However, no pipeline or other project facilities would directly encroach on breeding habitat (i.e., sparsely vegetated shore of potholes and other wetlands). All construction activities would occur more than 50 feet from known or potential plover nesting habitat in the prairie pothole region in the Medicine Lake/Westby area. The proposed water intake would not be located near piping plover nesting habitat.

Although construction activities would not directly alter piping plover nesting habitat, noise from construction could disturb nesting birds. To prevent disruption of nesting and brood rearing because of noise and associated human activities, construction activities within 0.5 miles of piping plover nesting habitat would take place after August 1. By August 1 young plovers would be able to avoid areas with high levels of human activity. The proposed project **would not be likely to adversely affect piping plovers or modify or degrade critical habitat**. Section 5.4, Environmental Commitments, lists required avoidance, mitigation and monitoring for piping plovers.

## Interior Least Tern

Interior least terns nest on islands or sparsely vegetated shorelines of the Missouri River, but

no nesting sites have been identified near possible intake locations or near other project facilities. Pipelines for the project would not cross suitable nesting habitat for these species. No project facilities would affect habitat or pose a mortality risk to interior least terns. The project **would not affect least terns.**

### Bald Eagle

Migrant and wintering bald eagles might be present near the intake at Poplar; however, operational activities would pose negligible risk. No roosting or nesting areas would be adversely affected nor would the prey base be affected by the project. Buried pipelines, pumping stations, water intakes, and other facilities **would not affect to bald eagles**.

### Whooping Crane

Pipelines and powerlines may cross habitat used by migrating whooping cranes. Because the pipeline system for the project generally parallels roads and highways, it is unlikely that disturbances from the project would differ from those currently posed by use of existing roads an powerlines. Wetland and aquatic habitat would be affected only for the construction period with reclamation quickly restoring affected habitat. The proposed project **would not affect whooping cranes**.

## EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems could affect threatened and endangered species through habitat alteration; however, the likelihood of affecting threatened or endangered species with this alternative is low.

# SOCIOECONOMIC RESOURCES

## EFFECTS OF PROPOSED ACTION

### Social Life

The proposed action would improve quality of life and provide economic benefits to the region. Appliances using water would last longer with good-quality water, livestock management and grazing potential would improve, and good-quality water would be available for residential outside use and industrial purposes. Improved water quality would benefit public health.

During the construction phase of the project, there would be increased employment opportunities, earnings, and local spending in the economy of the project area. This would be a positive impact on the residents and businesses of the project area.

### Community Services

Agencies and individuals expressed concerns about potential impacts on community services and temporary housing that could be created by the project's construction work force. Interviews were conducted with the Sheridan County Planner (Doug Smith personal communication 2002) concerning effects of the completed highway expansion project near Plentywood and a former employee of the Fort Peck Dam Water Project near Glasgow (Ron Miller personal communication 2002). Both individuals indicated that impacts to community services and temporary housing associated with the construction work force for these projects were negligible.

The construction and operation phases of the project would result in less than 20 workers coming from outside of the local labor market. Based on experience with other similar large water developments (i.e., Mni Wiconi in South Dakota), project sponsors indicate that 90 percent of the workers would come from the project area. Therefore, negative impacts to community services, such as law enforcement and ambulance services, would be minimal.

Impacts to community services could result if many workers and their families moved into the project area hoping to obtain jobs during the construction phase. Because project-related employment opportunities would be limited, workers coming to the project area seeking jobs would not likely remain in the project area for long periods.

### Temporary Housing

If project construction were to occur concurrently with peak seasons for tourism, hunting, and

petroleum development, there could be competition for lodging among FPRRWS construction workers and other visitors to the project area. Temporary housing may be difficult to secure, especially close to construction spreads in some parts of the project area (e.g., on the Reservation or near Opheim). However, it is likely that some construction workers would have RVs or other means to camp in or near the project area in designated camping areas, on public lands, or on private lands where landowners have granted permission. Some local residents also may board construction workers in their homes for a fee on a temporary basis. Since the number of in-migrating construction workers is estimated to be fewer than 10, little or no impact is expected to temporary housing in the project area (Doug Smith, Sheridan County Planner, personal communication 2002). Proprietors of motels and campgrounds and individuals renting rooms or RV spaces to construction workers would likely view the increased demand for temporary housing as a positive effect of the project.

## Traffic

There would be a slight increase in traffic during the construction phase due to commuters traveling to-and-from work and the hauling of materials to construction sites. Impacts from increased traffic on roads, bridges, and traffic safety would be negligible.

## Project Costs

Total project construction costs are estimated at $192 million. Annual operation and maintenance and replacement (OMR) costs are estimated at $3.45 million. Annual construction and OMR costs are estimated at $3.545 million. Project construction and OMR costs were discounted over a 50-year period at 4 percent to reflect the construction and initial OMR costs for the first 10 years of the project. The present value of project construction and OMR costs is estimated at $130.813 million and $71.012 million for the Reservation and Dry Prairie service areas, respectively.

## Employment and Earnings

Through construction of the entire project, an estimated 1,535 person-years (full-time equivalents) would be created. Earnings income is estimated at $49.99 million. The discounted value of these earnings is $26.058 million for the Reservation service area and $14.094 million for the Dry Prairie service area. OMR activities would provide additional employment (25 full-time employees) with total discounted earnings for the Reservation service area of $13.518 million and $9.872 million for the Dry Prairie service area.

The United States would receive an estimated $3.231 million and $0.756 million in Social Security and Medicare receipts, respectively, for the Reservation and Dry Prairie service areas. These would be new revenues from employment of an underemployed labor force on the Reservation.

Montana would have estimated gross receipts and income tax revenue of $422,000 and $775,000 from the Reservation and Dry Prairie service areas, respectively. These revenues would offset the appropriation of funds by the Montana Legislature to finance 50 percent of the non-federal cost share of the project construction.

## Livestock

Improved water quality would increase livestock weight gains by an estimated 30 pounds per head per year. Increases in weight gain would result in increased livestock income of $9.925 million and $10.416 million for the Reservation and Dry Prairie service areas, respectively. These values were derived assuming a 50-year life of project at 4 percent discount rate. The value of additional livestock weight assumed $0.55 per pound, with water delivery to 40 percent of the land in each service area.

## Avoided Costs

Implementation of the FPRRWS project would avoid costs associated with future upgrading and maintenance of existing water supply systems in the project area. The FPRRWS project would not eliminate these costs, but would replace them with the cost of a regional water system. Beneficiaries of avoided costs would be the state, federal, and local governments, and consumers.

Total costs for operation and maintenance of existing water systems that would be avoided with the FPRRWS would be about $28.2 million for water treatment facilities and $11 million for water sources (Watson Engineering 2001). These costs are calculated over the lives of the various existing facilities.

Other costs that would be avoided with the FPRRWS include: water-softening costs of $6.9 million, excess costs of water heater replacement of $1.1 million, bottled water costs of $4.9 million, nitrate removal costs of $0.51 million, arsenic and sulfate removal and monitoring costs of $4.2 million, and costs for treatment of water contaminated with brine from oil and gas extraction of $0.87 million (Watson Engineering 2001).

Avoidance of Indian health-care costs would also be a benefit of the proposed FPRRWS project. Better quality water combined with increases in per capita income from the project would decrease illness and mortality within the Reservation service area. Implementation of the FPRRWS project would reduce health-care costs, over the life of the project, by $12.71 million (Watson Engineering 2000).

### On-Reservation Construction and Employment

For project elements on the Reservation, the Tribe would include a labor preference for tribal members in construction specifications offered to bidders, therefore, most employment would be derived from Tribal members. Dry Prairie service area would furnish construction specifications that could reflect an agreement with the Tribe for employment of tribal members, but such an agreement does not exist.

### Tribal Employment Rights Office (TERO) Fees

The TERO office would be responsible for hiring project employees on the Reservation.
TERO fees would be charged by the Tribes at a rate of two percent of the project cost for construction activities within the boundaries of the Reservation.

## EFFECTS OF NO ACTION

If the FPRRWS project were not constructed, efforts to obtain good-quality water would likely continue. New wells would be drilled and existing water systems would be expanded and upgraded resulting in costs to individuals and communities. Some residents would continue to purchase water for in-home use and haul water for livestock.

With No Action, there would be inadequate amounts of good-quality water for human and livestock uses. Costs would not be expended for construction, operation, and maintenance. There would be no employment or earnings for the Fort Peck or Dry Prairie service areas as a result of project construction and operation.

The scarcity of good-quality water would remain a concern among residents. Those who have been directly affected by inadequate potable water would be disappointed with the No Action Alternative. Increased employment, earnings, and local spending would not be realized under this alternative.

No additional traffic would occur due to the proposed project and impact to highways and traffic safety would be negligible. There would be no changes in the demand for temporary housing.

# CULTURAL RESOURCES

## EFFECTS OF PROPOSED ACTION

Section 106 of the National Historic Preservation Act specifies that federal agencies must consider the effects of the proposed project on historic properties within the project area. Effects are evaluated through formal consultation between the federal agency, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation.

BOR is preparing programmatic agreements with the Fort Peck Tribes and the Dry Prairie Rural Water Authority that specify measures for compliance with the National Historic Preservation Act to ensure that the effects on historic properties are considered. This agreement will be in place prior to construction.

Parties to the agreement are Reclamation, SHPO, Advisory Council on Historic Preservation, the Fort Peck Tribes, and Bureau of Indian Affairs. The agreement stipulates that BOR will consult with the Fort Peck Tribes, SHPO, and Bureau of Indian Affairs to identify areas requiring and intensive Class III inventories and decide if cultural resources encountered qualify as historical properties. Historical properties would be avoided to the extent possible, and where avoidance is not possible, steps would be taken to mitigate impacts. On state lands, BOR would consult with state archaeologists to identify, avoid, and mitigate cultural resources.

Any burial site encountered on trust or public lands would be treated according to provisions of the Native American Graves Protection and Repatriation Act and National Historic Preservation Act. The significance of properties of traditional or cultural importance would be explored through consultation with tribal elders or traditionalists.

During each phase of construction, BOR would use the Class I file search to consult with the Tribal Historic Preservation Officer to determine which areas would require further Class III inventories. All project areas that have not been previously surveyed would be surveyed. These inventories would be conducted by a professional archaeologist under permit to the Fort Peck Tribes and Dry Prairie Rural Water Authority and be completed prior ground disturbances.

BOR and the Tribes would consult with the SHPO regarding locations and potential impacts to properties of traditional religious and cultural importance. Information on such properties is confidential and not available for public review.

It is BOR's responsibility to see that historic properties (significant cultural resources) are protected and avoided to the extent possible. BOR in consultation with the Tribes and SHPO, would determine appropriate avoidance or mitigation measures prior to construction.

If unanticipated cultural resources are encountered during construction, all ground-disturbing activities in the immediate vicinity would be stopped until BOR has consulted with the Tribes to evaluate the resource.

### EFFECTS OF NO ACTION

The No Action Alternative would result in continued efforts to obtain potable water. Drilling of new wells and expansion of existing or construction of new water treatment and distribution systems could affect cultural resources.

## LAND USE

### EFFECTS OF PROPOSED ACTION

Pipelines for the project would cross about 2.5 miles of land managed by the BLM and about 37 miles of land managed or under easement to the U.S. Fish and Wildlife Service. Pipelines also would cross about 70 miles of state lands.

Pipeline construction through croplands and pastures could disrupt agricultural activities and temporarily reduce production of crops and livestock forage. Loss of crops on pipeline rights-of-way would occur only during one season (the season of construction), whereas reductions in livestock forage would be realized for three to five years (until successful reclamation is achieved).

Increased supplies of water for livestock as a result of the project could affect use of rangeland and pasture and distribution of livestock. Some land not currently being used for livestock grazing may become suitable for grazing with the proposed project. Increased availability of stock water could also allow better management and distribution of livestock within grazing units. Because livestock need water daily, they often do not graze areas distant from a water source; consequently, some areas of rangeland are overutilized and some are not grazed to their capacity.

Increased availability of water in parts of the Fort Peck and Dry Prairie service areas that currently do not have adequate supplies of potable water may alter patterns of residential and commercial development. New construction of homes and businesses outside of existing communities would probably increase. Such new development could increase demands for services such as fire protection, road maintenance, and electricity.

### EFFECTS OF NO ACTION

The No Action Alternative would likely maintain existing land uses. Most of the project area's population would remain in areas where water can be obtained. Some residents may leave the project area because of inadequate water supplies. Out migration of residents in many areas of northern Great Plains has led to reductions in utilization agricultural lands for crop and livestock production.

## ENVIRONMENTAL JUSTICE

### EFFECTS OF PROPOSED ACTION

The proposed action would benefit tribal members by providing good-quality water for municipal, industrial and rural uses. Good-quality water would improve the quality of life by reducing inconvenience and costs associated with high concentrations of dissolved solids (e.g., discoloration of laundry, unpleasant taste and odor, and shortened useful lives of hot water heaters, dishwashers, and other appliances using water).

Minority and low-income populations are present on the Reservation; however, the proposed action and alternatives would not disproportionately change the demographics of the existing population or negatively affect the socioeconomic or cultural status population on the Reservation.

### EFFECTS OF NO ACTION

The No Action Alternative would not change existing conditions.

## INDIAN TRUST ASSETS

### EFFECTS OF PROPOSED ACTION

Construction of the project on the Reservation would not adversely affect trust lands and associated resources (e.g., vegetation, wildlife, and waters) of the Tribe or individual members. These lands are ITAs because the United States holds such lands in trust for the Tribe and individual Indian landowners.

Permits or authorization would be needed for facilities to be constructed on ITAs. Approximately 610 miles of ITAs (i.e., Tribal or allotted lands) would be crossed by pipelines on the Reservation.

The Tribes have water rights for significantly greater amounts of water in the Missouri River, its tributaries, and the aquifers of the Reservation than would be utilized by this project. The project would use part of the Tribes' water rights.

Cropland on the Reservation would be crossed after crops have been harvested to reduce impacts. If this is not possible, affected parties would be compensated for the lost value of crops.

Native grasslands crossed would be reseeded with native species following construction. Seeding would occur in late fall or early spring to maximize soil moisture.

Farmlands would not be adversely affected by construction. Disturbed lands could be farmed immediately following construction. Compacted soils resulting from construction traffic would be loosened with normal cultivation.

Impacts to wildlife would not be substantial. Construction may kill small, relatively immobile species (e.g., small rodents, reptiles, amphibians, and insects), but larger animals would be temporarily displaced during construction activities.

Impacts to intermittent and perennial streams would occur from sediment during construction of pipelines and other facilities. Exposed soil would be easily eroded by wind and rain and would be carried by overland flow into streams and other waters of the United States (including wetlands). These impacts would be temporary and would not affect important fisheries.

Pipelines would cross roads and highways. Most county roads and all state and federal highways would have crossings bored. These crossings would not affect the physical integrity of the roadway or use.

Avoiding important historical or cultural sites would minimize impacts to these resources.

There would be no significant long-term effects to ITAs from any of the proposed alternatives.

### EFFECTS OF NO ACTION

The No Action Alternative would result in the Fort Peck Tribes not exercising a portion of their water right.

## CUMULATIVE IMPACTS

Cumulative impacts are impacts to the environment that would result from the proposed action when added to other past, present, and future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts analyzed in this EA are the water releases from Fort Peck Reservoir proposed by the Corps of Engineers, state and federal highway expansion projects, and irrigation water withdrawals from the Missouri River.

### RELEASE OF WATER FROM FORT PECK DAM

Under current operation, Fort Peck Dam releases cold water from the depths of the Reservoir. This cold water, relatively free of sediment, negatively affects spawning by native fishes downriver and limits production of food and forage species. Releases of cold water low in sediment will continue to limit pallid sturgeon recruitment and food supplies for bald eagles, terns, plovers, and pallid sturgeon. Current operations do not provide adequate spawning temperatures in the river below Fort Peck Dam targeted for pallid sturgeon recovery. Historically, pallid sturgeon spawned in an environment that gradually warmed in the spring to temperatures above 60F (15.6 o C). Releases of cold water from Fort Peck Dam prevent attainment of optimum spawning temperatures downstream.

Higher spring flows and warmer water temperatures are needed to improve environmental conditions for pallid sturgeon, least terns, and piping plovers. The higher and warmer flows would provide the hydrologic cue for pallid sturgeon and other native fish to spawn. Higher flows would also redistribute sand for sandbars, inundate side channels, and connect backwater areas, providing additional nutrients, forage fish, and insects needed for larval fish, terns, and plovers.

Higher flows and warm-water releases are needed, on average, once every 3 years. The proposed Fort Peck releases would only be conducted in years of sufficient runoff and would be timed to avoid lowering the lake during the forage fish spawn (approximately mid-April to mid-May). Higher spring discharges would parallel higher spring inflows into the lake.

Peak discharges would range between 20,000 cubic feet per second (cfs) and 25,000 cfs and persist for a minimum of three days. Warm-water releases should continue for at least 30 days.

Under current conditions, pallid sturgeon do not appear to reproduce in the Missouri River downstream from Fort Peck Dam. Consequently, the proposed water intake at Poplar would not be likely to adversely affect pallid sturgeon through entrainment of eggs and larval fish. With proposed modification of operations at Fort Peck Dam to stimulate pallid sturgeon reproduction, pallid sturgeon eggs and young fish could be carried in the current to the intake at Poplar. Thus it is possible that operation of the water intake at Poplar may adversely affect pallid sturgeon, but only if modification of operations at Fort Peck Dam enhances pallid sturgeon to reproduce in the Missouri River above the proposed intake.

Increased spring releases from Fort Peck Dam could affect the dynamics of suspended and deposited sediments, channel migration rates, and water quality of the Missouri River at the FPRRWS intake at Poplar. These changes could alter the costs and efficacy of water treatment for the FPRRWS project and affect operation of the intake structure.

### HIGHWAY CONSTRUCTION AND EXPANSION

The Montana Department of Transportation (MDT) tentatively plans six highway improvement projects on Highway 2 that would take place from 2002 to 2006. These projects

may affect a total of about 59.1 miles of Highway in the vicinity of Nashua, Bainville, Oswego, Brockton, Big Muddy Creek, and Glasgow. These projects are under development and the final scope and tentative construction dates have not been set.

Upgrading and widening highways would expand the width of the highway right-of-way into agricultural area and residential areas. Because the proposed pipeline system for the FPRRWS would be placed immediately adjacent to roads and highways, it is possible that some adjacent property would be needed for both the water project and highway improvements.

If highway and water project construction take place at the same time, construction activities from both would generate noise and dust. Some residents living near construction sites could have access to and from their property temporarily disrupted. Dust from construction of both projects could cause localized respiratory and house-cleaning problems for residents near construction sites. Restricting vehicle speeds on construction sites and applying dust suppressants or water to control dust would reduce the impacts. Contractors for MDT projects are required to mitigate for dust, access disruption, and other impacts from highway projects.

Although rights-of-way for the water project pipeline would have restrictions placed on landowners for some types of land uses (e.g., construction of buildings and excavations), most surface uses associated with agricultural activities would be unaffected.

## IRRIGATION INTAKES AND DIVERSIONS

Currently there are about 700 irrigation intakes and diversions drawing water from the Missouri River between the Fort Peck Dam and the North Dakota border (Montana Department of Natural Resources and Conservation file information 2002). There are 374 claims for water rights that have been filed with the Department of Natural Resources and Conservation for this reach of the Missouri River, totaling 6,725 cubic feet per second (3 million gallons per minute). At any given time in the irrigation season, irrigators with water rights could divert this amount from the Missouri River.

Like the proposed water intake for the FPRRWS project, these diversions have the potential to entrain larval fish, fish eggs, and plankton. Many of these intakes and diversions probably also entrain larger fish because they do not have protective devices such as small-mesh screening or low velocities at intakes to prevent uptake of larger organisms.

Under normal operating conditions, the water intake for the proposed FPRRWS would withdraw a maximum 13.1 gallons per day (9,133 gallons per minute) from the Missouri River. This would be 0.3 percent of the total diversion that could be withdrawn from the Missouri River, between Fort Peck Dam and the North Dakota border at any given time by irrigators. Impacts on aquatic biota resulting from the FPRRWS project would have a negligible cumulative effect when considered with existing irrigation impacts.

# 5.0 CONSULTATION AND COORDINATION

## PUBLIC INVOLVEMENT

"Scoping", a process identified in Council on Environmental Quality (CEQ) regulations, is an iterative process involving preparers of NEPA documents, the public, Indian tribes, government agencies, and other parties with an interest in the proposed project. The purpose of scoping is to identify public and agency concerns, to facilitate preparation of the EA, and to define issues and alternatives to be addressed in the EA. Scoping has a large component of public/agency involvement and is also a means by which the analysis process in the EA is streamlined and coordinated.

## AGENCIES AND INDIVIDUALS CONTACTED

### SCOPING MEETINGS

The Fort Peck Assiniboine and Sioux Tribes, the Dry Prairie Water Authority, Bureau of Reclamation, and State of Montana (Department of Natural Resources and Conservation, the lead State agency) sponsored public scoping meetings at Glasgow, Poplar, Culbertson, Plentywood and Scobey over a two-week period from January 24 – January 31, 2001. Scoping meetings with state and federal agencies were held on March 7, 2001 and March 28, 2001, respectively. A description of the project and showing the locations of major project facilities (Appendix F) was handed out at scoping meetings and mailed to individuals and agencies.

The public was informed of scoping meetings through advertisements in local papers and over local radio stations serving the five communities.

The following newspapers published notices of the scoping meetings:

- The Searchlight (Culbertson)
- Wolf Point Herald (Wolf Point)
- Glasgow Courier (Glasgow)
- Daniels County Leader (Scobey)
- Sheridan County News (Plentywood)
- Wotanin (Poplar)

The following radio stations broadcast notices of scoping meetings:

- KCGM (Scobey)
- KLTZ (Glasgow)
- KATQ (Plentywood)
- KVCK (Wolf Point)

A public service announcement was also placed in the Great Falls Tribune. This announcement described the project history, involved agencies, and project facilities and requested public comments.

In addition to announcements over the radio and in newspapers, letters describing the project were sent to state and federal agencies, individuals, conservation districts, and project participants for the Fort Peck Tribes and Dry Prairie Rural Water Authority. Approximately 75 people attended the scoping meetings, with the most attending the meeting in Glasgow (29 people).

Persons and agencies contacted in person or by a letter describing the project included the following:

Harold Wentland, Montana Department of Fish, Wildlife and Parkes, Glasgow, MT.

Lou Hanebury, U.S. Fish and Wildlife Service, Billings, MT 59101

John Fahlgren, Bureau of land Management, Rt. 1-4775, Glasgow, MT 59230

Ted Gutzke, U.S. Fish and Wildlife Service, 223 North Shore Road, Medicine Lake, MT 59247

Ray Mule, Montana Department of Fish, Wildlife and Parks, Culbertson, MT 59218

Jean Ramer, Army Corps of Engineers, 301 S. Park Ave., Helena, MT 59601

Alan Steinle, Army Corps of Engineers, 301 S. Park Ave., Helena, MT 59601.

Larry Robson, Army Corps of Engineers, Billings, MT 59102

Mark Wilson, U.S. Fish and Wildlife Service, 100 N. Park, Helena, MT 59601

Director, Environmental Protection Agency, Federal Building, Helena, MT 59601

Jim Satterfield, Montana Department of Fish, Wildlife and Parks, Glasgow, MT 59230

Bill Wiedenheft , Montana Department of Fish, Wildlife and Parks, Glasgow, MT 59230

Rick Stellflug, Valley County Weed District, Glasgow, MT 59230

Michael Rabenberg, U.S. Fish and Wildlife Service, Medicine Lake, MT 59247

Deb Madison, Environmental Program, Fort Peck Assiniboine and Sioux Tribes, Poplar,MT 59255

Clint Jacobs, Dry Prairie Rural Water Authority, Culbertson, MT 59218

Tom Escarcega, Water Resources, Fort Peck Assiniboine and Sioux Tribes, Poplar MT 59255

Bobbie Roos, Daniels County Extension Agent, Scobey, MT 59263

Gary Steinberg, Sheridan County Weed District, Plentywood, MT 59254

Maurice Gonitzke, Roosevelt County Weed District, Culbertson, MT 59218

Dennis Whiteman, Superintendent, Bureau of Indian Affairs, Poplar, MT 59255

Indian Health Service, 802 Assiniboine, Poplar, MT 59255

Rick Knick, Dry Prairie Rural Water Authority, Culbertson, MT 59218

Miles Knudsen, Box 734, Culbertson, MT 59218

Charlie Cahill, Box 1172, Scobey, MT 59263

Jim Tande, Rural Route, Scobey, MT 59263

Gordy Kampen, 1250 Rock Springs, Reserve, MT 59258

Jon Bolstad, 193 Big Lake Road, Homestead, MT 59242

Allen Bunk, Box 333, Nashua, MT 59248

Marvin Tarum, 430 Tarum Road, Richland, MT 59260

Henri Headress, Fort Peck Tribes, Box 1027, Poplar, MT 59255

Mike Watson, Watson Engineering, Helena, MT 59601

Doug Smith, Sheridan County Planner, Plentywood, MT 59254

Linda Nelson, 469 Griffen Road, Medicine Lake, MT 59247

Daryl Toews, HC Box 34, Lustre, MT 59255

Mike Carlson, Eastern Plains RC&D, Sidney, MT 59270

Valley County Conservation District, 98 Highway 2 East, Rm. 2, Glasgow, MT 59230

Daniels County Conservation District, PO Box 605, Scobey, MT 59263

Sheridan County Conservation District, 119 N. Jackson, Plentywood, MT 59254

North Valley County Water and Sewer District, St. Marie, MT 59231

Denise Biggar, Box 1269, Glasgow, MT 59230

## FISH AND WILDLIFE COORDINATION ACT

The U.S. Fish and Wildlife Service (USFWS) reviewed the FPRRWS project and prepared the following recommendations from the planning aid letter (PAL) in accordance with the Fish and Wildlife Coordination Act (FWCA). The PAL is attached as Appendix G.

### Aquatic Resources

Aquatic resources in the project area could be affected by installation and operation of the intake structure, water distribution system, and ancillary facilities. Impacts to streams will be avoided by directionally drilling to install pipelines under the Poplar and Milk rivers. Fishery impacts in other streams will be reduced by timing construction in streams to avoid high runoff periods in spring and early summer, potentially important periods for fish spawning and movement.

Because there is potential for the water intake to entrain larval fish and fish eggs, water diverted from the Missouri River will be monitored each year for the first five years of operation for the presence of fish eggs and young fish. Sampling will be done three times each year between May1 and June 15. A known volume of water in the wet well will be drawn from the throughout the water column, passed through a screen or mesh to retain fish eggs and larvae. Eggs and larvae will be collected, preserved, counted, and identified to species. A monitoring report will be prepared after each annual sampling period and submitted to the USFWS. If pallid sturgeon eggs or larvae are found in samples taken from the wet well, consultation will be reinitiated under Section 7 of the Endangered Species Act of 1973.

### Wetlands

Wetlands will be avoided through route selection and by constructing around wetlands. Many wetlands will be avoided by crossing under

roads. If wetlands cannot be avoided, construction will be scheduled when wetlands are driest (usually late summer or early fall). Disturbed wetlands will be restored to preconstruction contours.

Not all wetlands can be avoided; therefore ecological functions of affected wetlands would be degraded. To compensate for lost or degraded wetland functions, a wetland mitigation plan will be prepared that describes the amount, location, and types of wetland mitigation that will be implemented to compensate for project losses. Wetland mitigation in the Fort Peck Reservation service area will follow the specifications identified in the tribal wetland mitigation policy (Appendix H). Wetland mitigation in the Dry Prairie service area will be developed and implemented in consultation with the Partners for Fish and Wildlife, a USFWS team based at the Medicine Lake National Wildlife Refuge.

A field review team, composed of members of the Fort Peck Tribes, BIA, Dry Prairie Rural Water Authority, BOR and USFWS, will be convened prior to each construction season. The team will conduct field reviews of proposed pipeline alignments and make recommendations regarding avoidance of wetlands and restoration of wetland functions and values.

### Terrestrial Resources

The use of road rights-of-way will minimize impacts to terrestrial resources and is the preferred location of pipelines. An exception would occur where the pipeline will be rerouted in grassland or cropland to avoid wetlands. Impacts to grasslands or woody vegetation would be of short duration and would be minimized through appropriate reclamation.

The intake structure would have the potential to affect riparian habitat. This habitat is important to a wide range of wildlife species. Avoidance of riparian habitat when selecting the treatment site is preferred to minimize impacts. Powerlines required for the intake structure, pumping stations, and other facilities will be constructed according to raptor protection guidelines (Olendorff et al 1981).

### Threatened and Endangered Species

Impacts to piping plover and least tern-nesting habitat on sandbars and islands of the Missouri River would be eliminated by timing construction of the intake to avoid the critical nesting period of May 15 to July 30 or by selecting an intake site at least 0.5 miles from potential nesting habitat. Locations of nesting habitat for least terns and piping plovers is dynamic; therefore, the USFWS will be contacted to obtain the latest information regarding nesting locations prior to making a final site selection or starting construction.

Raptor proofing new or upgraded powerlines will prevent electrocution of bald eagles and other large raptors.

Monitoring of the intake for the presence of pallid sturgeon eggs or fry will be implemented.

Based on this EA and the Biological Assessment prepared under the Endangered Species Act, the USFWS has determined that the proposed action is not likely to adversely affect listed species or proposed critical habitat for piping plover.

## ENVIRONMENTAL COMPLIANCE

The following regulations, authorizations, and approvals are applicable to the proposed FPRRWS project and will be complied with.

### FEDERAL REGULATIONS AND POLICIES

#### National Environmental Policy Act of 1969 (NEPA)

This act requires federal agencies to consult with each other and to employ systematic and interdisciplinary techniques in planning and decision making. NEPA requires full and honest disclosure of all environmental impacts associated with the proposed alternative.

#### Endangered Species Act of 1973

This act requires consultation with the USFWS for federally listed threatened and endangered

species identified to exist or potentially exist in the project area. If a project may affect a federally listed species or critical habitat, Section 7 consultation must be initiated between Reclamation and the USFWS.

### Migratory Bird Treaty Act

This act implements various treaties and conventions between the United States, Canada, and Mexico, and Japan for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is illegal.

### Executive Order 13186 Protection of Migratory Birds

This order directs federal agencies to take actions to implement the Migratory Bird Treaty Act. Federal agencies must develop and implement Memorandum of Understanding with the USFWS to promote the conservation of migratory birds.

### Fish and Wildlife Coordination Act of 1958

This act requires that whenever the federal government authorizes, sponsors, or issues a permit to impound, modify, divert, or otherwise control waters of any body of water, the federal entity authorizing the project must consult with the USFWS.

### Clean Water Act of 1972 - Section 401

This section of the Clean Water Act, although administered by the Environmental Protection Agency (EPA), is the responsibility of the states and Indian tribes to develop and enforce. Section 401 provides states and Indian tribes authority to grant or deny certification for a federally permitted or licensed activity that may result in discharges to waters of the United States.

### Clean Water Act of 1972 - Section 402

This section of the Clean Water Act is administered by the EPA on Indian reservations and by Montana on non-tribal lands. Section 402 regulates point-source discharge of wastewater into waters of the United States. Under this section of the Clean Water Act, a National Pollution Discharge Elimination System (NPDES) permit could be required during the construction phase of the project.

### Clean Water Act of 1972 - Section 404

The Corps of Engineers (COE) administers section 404, with oversight by the EPA. All activities involving the placement of dredged or fill material into waters of United States, including wetlands, are subject to the COE permitting process. Because the proposed project would result in dredging and filling wetlands and other waters during construction, a 404 permit will be required. The COE will determine if a Nationwide or Individual 404 permit will be issued for the project when a 404 permit application has been submitted.

### Rivers and Harbors Act - Section 10

The Corps of Engineers administers section 10. An authorization is required for construction of an intake structure in the Missouri River, a federally listed navigable river.

### Clean Air Act of 1972

This act requires that any federal entity engaged in activities that may result in discharge of air pollutants must comply with applicable air pollution control laws and regulations. Under this act, the EPA must publish national primary air-quality standards to protect public health and secondary standards to protect public welfare. Measures will be incorporated into contract specifications for the project to ensure compliance with air quality standards.

### Safe Drinking Water Act of 1996

This act directs the EPA to prepare guidelines for preparation of Water Conservation Plans for MR&I projects.

### American Indian Religious Freedom Act of 1978

This act of requires federal agencies to consider impacts of projects on the ability of American Indians to continue their traditional cultural and religious practices.

### Archaeological Resources Protection Act of 1979

Permits are required to remove archaeological resources from federal and Indian lands. Permits may be issued to educational and scientific institutions if removal of archaeological resources would increase knowledge of cultural resources.

### Archaeological and Historic Preservation Act of 1974

This act authorizes federal agencies to protect historical and archaeological resources that might be lost as a result of a federally authorized activity.

### National Historic Preservation Act of 1966

This act establishes federal policy concerning protection of historic properties. The Act designates the SHPO as the responsible entity in each state for administering the Act. The 1992 amendments to the Act require federal agencies to consider impacts of projects on properties of traditional religious and cultural importance to American Indians and to involve tribes in the consultation process.

### Native American Graves Protection and Repatriation Act

This act establishes federal policy with respect to Native American burials and graves located on federal or Indian lands. Federal agencies are required to consult with and obtain concurrence with appropriate tribes when projects may disturb burials and graves on federal and Indian lands.

### Comprehensive Environmental Response, Compensation, and Liability Act

Authorizes the identification, assessment, and cleanup of hazardous waste sites.

### Executive Order 11593, 1971, Protection and Enhancement of the Cultural Environment

Requires federal agencies to avoid inadvertently destroying cultural properties.

### Executive Order 11988 (Floodplain Management, 1977)

Requires federal agencies to avoid developments on floodplains when practicable alternatives exist. If a facility is located within the floodplain, action shall be taken to minimize potential harm to or within the floodplain.

### Executive Order 13112 (Invasive Species 1999)

Requires federal agencies to prevent the introduction of invasive species and provide for their control and to minimize economic, ecological, and human health impacts that invasive species cause.

### Federal Water Project Recreation Act of 1965

Requires federal agencies to consider potential outdoor recreation or fish and wildlife enhancement benefits that water resources projects may provide.

### Compatibility Determination 50 CFR 29.21

A compatibility determination is required for a right-of-way easement across lands managed or under easement by the U.S. Fish and Wildlife Service. This determination must be made for easements across wildlife refuges (e.g., Medicine Lake National Wildlife Refuge), waterfowl production areas, and easements on

private lands to protect wetlands and native prairie.

## STATE REGULATIONS, AUTHORIZATIONS, AND POLICIES

State regulations, authorizations, and policies do not apply to actions associated with the project on the Reservation, but they do apply to project activities in the Dry Prairie service area.

### Montana Floodplain and Floodway Management Act

Construction activities within a designated 100-foot floodplain require a permit from DNRC or local Floodplain Coordinator.

### Montana Land-use License or Easement on Navigable Waters

The construction, placement, or modification of a structure or improvement on lands below the low-water mark of navigable streams requires a permit from DNRC. A Land Use License is required for construction activities on state lands such as pipelines, pumping stations, and other facilities.

### Public Water Supply Act

Prior to operating, constructing, altering, or extending a public water supply, the applicant must submit an engineering report with the necessary plans and specifications to DEQ for review and approval.

### Montana Department of Transportation Crossing Permits

Facilities crossings of state highways, including directional drilling, require either a Utility Occupancy or Encroachment permit from MDT.

### MPDES Wastewater Discharge (Surface Water)

All discharges to surface waters, including those related to construction, dewatering, suction dredges, and hydrostatic testing, require a permit from DEQ.

### Storm Water Discharge

Industrial, mining, and construction activity, meeting a minimum acreage requirement, that discharge storm water to state waters require a permit for the DEQ.

### Turbidity Authorization

Any activity in state waters that will cause unavoidable short-term increases in turbidity or sediment (usually associated with construction projects) must have an authorization from DEQ.

### The Natural Streambed and Land Preservation Act of 1975-310 Permit/SPA (124)

Any activity that physically alters or modifies the bed or banks of a stream requires a permit from the local Conservation District. Government agencies require SPA authorization from Montana Fish, Wildlife & Parks.

### 3A Authorization

Construction of segments of the water distribution system would increase suspended sediment and turbidity to levels above established standards. Therefore, a short-term exemption from surface water quality standards (3A authorization) from the Montana DEQ would be needed before project construction.

### 401 Certification

Any federally permitted activity that may result in a discharge to state waters (including jurisdictional wetlands) must have certification from DEQ that the federal permit does not conflict with state regulations, authorizations, or policies.

### County Noxious Weed Control Act

This state law identifies noxious weeds and requires that each county have a noxious weed control plan. All projects that disturb soils need to comply with each county's noxious weed management plan.

### Non-game and Endangered Species Conservation Act 87-5-101

Montana Fish, Wildlife & Parks is responsible for protecting indigenous wildlife that is endangered within the state.

## ENVIRONMENTAL COMMITMENTS

Environmental commitments to avoid mitigate, and monitor environmental impacts have been developed in consultation with state and federal agencies and project sponsors. These commitments will be implemented before construction and operation of the project, unless otherwise specified.

The Fort Peck Tribes and BIA will obtain the necessary permits, easements, and licenses for construction and operation of the project in the Fort Peck Reservation service area. The Dry Prairie Rural Water Authority will obtain the necessary permits, easements, and licenses for construction and operation of the project in the Dry Prairie service area.

Environmental commitments will be included in contract specifications for construction of the proposed project.

To help ensure that these commitments are implemented and successful, a team of resource specialists representing state and federal agencies and project sponsors will be assembled prior to initiation of construction activities. This team will monitor construction and operation phases of the project for compliance with environmental commitments.

Costs to implement these environmental commitments have been included in the Final Engineering Report (Watson Engineering 2001). Environmental mitigation is budgeted at about $5.63 million. These measures would be carried out before construction, during construction, or in the same calendar year.

### TOPOGRAPHY, GEOLOGY, AND SOILS

Mitigation measures that affect topography, geology, and soils are:

- Construct pipelines next to existing roads to eliminate or reduce the need for new maintenance or access roads.
- Mound soil over pipeline to compensate for settling.
- Control erosion by reseeding the trenches of large-diameter pipelines as soon as possible after construction.
- Strip topsoil from the trenches of pipelines larger than 12 inches in diameter ( to a depth of 12 inches in deep soils, or to whatever depth topsoil extends in more shallow soils, and stockpile to prevent mixing with the less productive subsoils. Replace topsoil as the last step in backfilling the trench, so more productive soils will be returned to the surface soil horizon. Topsoil of trenches of small-diameter pipelines will not be segregated and replaced on the surface unless requested by the landowner or land management agency.
- Install temporary and permanent slope breakers and sediment barriers (such as soil berms or staked hay bales) to reduce water erosion on slopes greater than 5 percent.
- Leave undisturbed buffer strips of natural vegetation on waterway banks and bottoms and at road crossings until construction is ready to proceed.
- Where necessary work topsoil with disc, chisel plow, or similar implement to reduce compaction or crusting before seeding.
- Leave topsoil in roughened condition until it is seeded to prevent wind erosion.
- Hydroseed and mulch steep slopes; mulching areas prone to wind erosion, at a rate of 1.0 ton per acres, with straw free of noxious weed seeds.
- Anchor mulch use a mulch crimper; and use soil stabilization materials such as jute netting, geotextile, and excelsior blankets.
- Install water bars to divert runoff from disturbed areas.

- Place subdrains in trenches that intercept flowing groundwater to divert flows away from the trench.
- Backfill immediately after pipe is placed in trenches.
- Implement best-management practices to reduce erosion will be implemented.

## WATER RESOURCES

Mitigation measures that affect water resources are:

- Place silt fabric barriers to control sediment on slopes in excess of five percent at stream crossings and adjacent to wetlands.
- Stockpile soil from the trench out of the water at waterway crossings and replace it after pipeline completion.
- Stockpile spoil at larger stream crossings on the downstream side of the trench, leaving gaps for flowing water.
- Select stream crossing sites where the channel is relatively stable and not sidecutting (these sites generally occur at inflection points between meanders or along straight channel segments, with vegetated banks).
- Construct stream crossings perpendicular to the axis of the stream channel.
- Restore original streambank contours.
- Service and refuel construction equipment at least 250 feet from all water bodies and wetlands.
- Riprap banks where flow conditions prevent vegetation stabilization.

## WETLANDS

Mitigation measures that affect wetlands are:

- Avoid wetlands during construction where practicable.
- Where wetlands cannot be avoided, implement mitigation measures to help ensure no net loss of wetland habitats.
- Follow the tribal wetland mitigation policy the Fort Peck Reservation.
- Delineate wetlands and assess their functional capacity prior to construction.
- Place pipelines in road shoulders through wetlands, with the trench bottom above the impermeable layer if feasible.
- Install cutoff collars (or diaphragms) around the pipe on both sides wetlands if pipeline profiles indicate possible draining of wetlands.
- Use temporary supporting platforms such as landing mats or planking to prevent equipment form cutting ruts or sinking into wetlands.
- Directionally drill under major perennial streams (e.g., Poplar and Milk rivers) beneath the scour depth of the rivers.

## VEGETATION

Mitigation measures that affect vegetation are:

- Reseed native rangeland with native species at rates to ensure rapid revegetation.
- Broadcast seed where appropriate to minimize visual impact of drill rows.
- Drill seed in areas adjacent to noxious weed infestations and areas prone to wind erosion.
- Identify and treat noxious weed infestations prior to construction.
- Prepare and submit a noxious weed control plan to each county weed control district.
- Equip construction equipment with mufflers and spark arresters to reduce risk of fire.

## FISH AND WILDLIFE

Mitigation measures that affect fish and wildlife are:

- Time construction to avoid disturbing grouse leks, and nesting raptors and waterfowl.
- Prepare a Memorandum of Understanding with USFWS to protect and conserve migratory birds.
- Avoid electrocution of raptors by constructing power lines according to Suggested Practices for Raptor Protection on Powerlines (Olendorff et al 1981).
- Time construction to avoid impacts on spawning fish.
- Maintain flows in streams during construction of stream crossings.
- Monitor the effectiveness of the intake screen in preventing the uptake of larval fish and eggs.
- Directionally drilling the Poplar and Milk rivers for pipeline placement.
- Design the Missouri River water intake so that water velocity does not exceed 0.5 feet per second and the mesh over the intake is 0.25 inches.

## THREATENED AND ENDANGERED SPECIES

Mitigation measures that affect threatened and endangered species are:

- Construct all facilities more than 50 feet from piping plover and least tern nesting habitat.
- Schedule construction within the line of sight of piping plover and least tern nesting habitat to take place after August 1.
- Monitor the intake annually between May and June 15 for the presence of pallid sturgeon eggs and larvae.
- Reinitiate consultation with USFWS if pallid sturgeon eggs or larvae are found in the intake.

## LAND USE AND OWNERSHIP

Mitigation measures that affect land use and ownership are:

- Route pipelines to avoid golf courses, cemeteries, recreation areas, airports, sewage lagoons, buildings, and hazardous waste sites.
- Consult with EPA to delineate hazardous waste sites before acquiring rights-of-way or property.
- Conduct contaminant survey of sites for permanent facilities.
- Bore under highways, roads, and irrigation ditches unless otherwise permitted.
- Minimize time trenches are left open.
- If livestock are present, fence trenches to prevent them from falling in trench.
- If construction occurs prior to or during the growing season, negotiate with landowners for compensation of crop losses and temporary losses of productivity.
- Contact local utilities prior to construction to avoid buried facilities.
- Cross state roads and highways perpendicular to the roadway.
- Submit a traffic control plan to the MDT if work on the project would be within the rights-of-way of state highways.

## CULTURAL RESOURCES

Mitigation measures that affect cultural resources are:

- Consult with the Fort Peck Tribes, BIA, Dry Prairie Rural Water Authority, and SHPO to identify lands requiring intensive (Class III) cultural resources surveys.

- Consult with the Fort Peck Tribes to avoid construction in areas of cultural or spiritual significance in the Fort Peck and Dry Prairie service areas.

- Issue stop-work orders if archaeological or paleontological resources are encountered.

- Adher to stipulations in the Programmatic Agreement concerning cultural resources

### SOCIOECONOMIC RESOURCES

To the extent possible, hire local workers to reduce influx of people and demands on community services.

## LIST OF PREPARERS

Dave Books - Technical Writer/Editor; B.S. Forestry, University of Minnesota; M.S. Forestry, Yale University.

Joe Elliott - Project management/Biological Resources; B.S. Biology, University of Wisconsin at Eau Claire; Ph.D. Botany, University of Montana.

Barry Dutton - Soils/Geology; B.S., Soil Science/Botany, University of Montana; M.S.

Bonnie Johnson – Word Processing/Report Production, Maxim Technologies, Inc.

Linda Priest - Socioeconomics; B.S. Sociology/Criminal Justice, University of Nebraska.

Sally Staley - GIS/Graphics, Maxim Technologies Inc.

Jerry Wells - Fisheries; B.S. M.S., Fisheries and Wildlife Management, Montana State University

# 6.0 LITERATURE CITED

Berglund, J. 1997. Biological resources report for Montana Department of Transportation Project 1-9(30)565, Control #1739 Frazer East and West. Montana Department of Transportation. Helena, Montana.

Berglund, J. 1999. MDT - Montana wetland assessment method. Unpublished Report. Western EcoTech. Helena, Montana.

Bergstedt, L. and R. White.1997. Population structure and habitat use of benthic fishes along the Missouri and lower Yellowstone rivers. Annual Report, Section 1, Missouri River Headwaters Mainstem. Cooperative Fish and Wildlife Research Unit, University of Missouri-Columbia.

BioWest Inc. 1990. Development of instream flows for fisheries and wetlands for the Fort Peck Indian Reservation. Unpublished report. Logan, Utah.

Brumley, J. and A. Brumley. 1999. A modified Class I cultural resource inventory of the proposed Dry Prairie Rural Water System. Unpublished report. Ethos Consultants. Havre, Montana.

Butts, T. 1995. Wildlife habitats and proposed wildlife studies for the F. Neil Smith gas-fired cogeneration plant Wolf Point, Montana. Continental Divide Wildlife Consulting. Helena, Montana.

Carlson, D., W. Pflieger, L. Trial, and P. Haverland. 1985. Distribution, biology, and hybridization of Scaphirhynchus albus and S. platorhynchus in the Missouri and Mississippi Rivers. Environmental Biology of Fishes. 14:51-59.

DeVelice, R., S. Cooper, J. McGarvey, J. Lichhardt, and P. Bourgeron.1995. Plant communities of northeastern Montana: a first approximation. Unpublished report. Bureau of Land Management. Montana Natural Heritage Program. Helena, Montana.

Elliott, J. 1998. Fort Peck municipal, rural, and industrial water supply project. Wetlands study. Unpublished report. Missoula, Montana.

Fuller, D. 2000. Community structure, habitat use and distribution of Milk River fishes. Annual Progress Report, U.S. Bureau of Reclamation. Billings, Montana.

Gardner, W. 1992. Yellowstone River paddlefish spawning study. Montana Department of Fish, Wildlife, and Parks Fed. Aid Project F-46-R-7. Helena, Montana

Gardner,W.1994. Missouri River pallid sturgeon inventory. Montana Department of Fish, Wildlife, and Parks. Fed.Aid. Project F-46.

Gardner, W. and P. Stewart. 1987. Fishery of the lower Missouri River, Montana. Montana Department of Fish, Wildlife, and Parks. Federal Aid to Fish and Wildlife Restoration Project FW-2-R. Job I-b.

Gilmore, M. 1977. Uses of plants by the Indians of the Missouri River region. University of Nebraska Press. Lincoln and London.

Gould, W. 1994 and 1997. Personal collection at Montana State University.

Hart, J. and J. Moore. 1976. Montana - Native plants and early people. The Montana Historical Society and Montana Bicentennial Administration.

Hansen, P., R. Pfister, K. Boggs, B. Cook, J. Joy, and D. Hinckley. 1995. Classification and management of Montana's riparian and wetland sites. Montana Forest and Conservation Experiment Station, University of Montana, Missoula, Montana. Misc. Pub. No. 54.

Hansen, P., B. Thompson, and S. Miles.1993. Riparian hardwood inventory of the Fort Peck Indian Reservation. Montana Riparian Association. Montana Forest and Range Conservation Experiment Station. Missoula, Montana.

Heidel, B., S. Cooper, and C. Jean. 2000. Plant species of special concern and plant associations of Sheridan County, Montana. Unpublished report. Montana Natural Heritage Program. Helena, Montana.

Holton, G. 1990. A field guide to Montana Fish. Montana Department of Fish, Wildlife, and Parks. Helena, Montana.

Johnson, R. 1966. Types and distribution of wetlands in Montana. In: Proceedings of Montana wetlands, their uses, value, and future. A symposium and workshop. June 24 and 25, Bozeman, Montana.

Johnston, A. 1987. Plants and the Blackfoot. Occasional Paper No. 15. Lethbridge Historical Society. Lethbridge, Alberta.

Krentz, S. 1997. Summary report of work conducted by the Missouri River FWMAO on Missouri and Yellowstone Rivers - Pallid sturgeon Report MRFA 097-03, U.S.F.W.S., Bismarck, North Dakota.

Liebelt, J. 1995. Preliminary report: Fort Peck pallid sturgeon study - 1994. In: Proceedings of the first joint meeting of the Montana/North Dakota pallid workgroup and the fluvial arctic grayling workgroup. Montana Department of Fish, Wildlife, and Parks. Helena, Montana.

Liebelt, J.1998. Lower Missouri River and Yellowstone River pallid sturgeon study. Western Area Power Administration. Grant 94-BAO-709. Montana Department of Fish, Wildlife, and Parks, Fort Peck Montana.

Maxim Technologies. 1999. Environmental baseline study report. Dry Prairie Rural Water. Unpublished Report. Helena, Montana.

Metz, M. 1999. Potential wetland impacts of the proposed Fort Peck Municipal, Rural, & Industrial Water Pipeline Project. Unpublished Report. Wetlands Consultant. Missoula, Montana.

Montana Board of Crime Control. 2001. Law Enforcement Manpower in Montana – 2000.

Montana Department of Fish, Wildlife and Parks (MDFWP). 1976. A summary of fish population investigations in the Poplar River drainage, July 1, 1975-March 31, 1976. F-16-18.

Montana Department of Fish, Wildlife and Parks (MDFWP). 1979.Lower Missouri River Basin Investigations, planning inventory, fisheries. Fed. Aid. Project. FW-2-R-8, Job I-b.

Montana Department of Labor and Industry. 2001. Annual Average Labor Force Summary Report.

Montana Department of Natural Resources and Conservation. 1999. West Crane sprinkler irrigation project – draft environmental assessment. Helena, Montana.

Montana Department of Public Health and Human Services, Food and Consumer Safety Section. July 2001. County License Listing for Motels/Hotels and Mobile Home Courts/Campgrounds.

Montana Department of Public Health and Human Services, Emergency Medical Services and Injury Prevention Section. 2002. Data request for ambulance/emergency responder services within Roosevelt, Daniels, Valley, and Sheridan counties.

Montana Department of Public Health and Human Services, Vital Statistics Bureau, Helena, Montana. 2002. Data request for data on deaths from motor vehicle accidents.

Montana Department of Public and Health and Human Services. 2001. Health planning, health policy, and services division. County health profile.

Montana Department of Transportation, Highway Traffic Section. 2001. Data request for data on accident summary totals.

Montana Rivers Information System (MRIS). 2001. Database on Internet. Helena, Montana.

Payne, G. 1973. Vegetative rangeland types in Montana. Montana Agricultural Experiment Station. Bozeman, Montana.

Reel, S. L. Schassberger, and W. Ruediger. 1989. Caring for our natural community: Region 1 - Threatened, endangered, and sensitive species program. USDA Forest Service. Missoula, Montana.

Reichel, J. and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Outdoors May/June. Helena, Montana.

Ryckman, F. 1995. Paddlefish snagger creel and incidental sturgeon snagging survey. In: Proceedings of the first joint meeting of the Montana/North Dakota pallid workgroup and the fluvial arctic grayling workgroup. Montana Department of Fish, Wildlife, and Parks. Helena, Montana.

Scarnecchia, D., P. Stewart, and L. Ryckman. 1994. Management plan for the paddlefish stocks in the Yellowstone River, Upper Missouri River, and Lake Sakakawea. Montana Department of Fish, Wildlife, and Parks, University of Idaho.

Scott, and Crossman. 1979. Freshwater fishes of Canada. The Bryant Press Limited.

Shenkle, C. 2001. Labor market information supervisor, Office of Research and Analysis, Montana Department of Labor and Industry. Personal Communication with Linda Priest, Northwest Resource Consultants, Helena, Montana.

Stebbins, R. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston.

Sumner, J. 1995. Peregrine falcon survey on four Montana Indian Reservations. Craighead Wildlife-Wildlands Institute. Missoula, Montana.

Tews, A. 1994. Pallid sturgeon and shovelnose sturgeon in the Missouri River from Fort Peck Dam to Lake Sakakawea and in the Yellowstone from Intake to its mouth. Montana Department of Fish, Wildlife and Parks. Helena, Montana.

Tiller, V. 1996. Tiller's guide to Indian Country - Economic profiles of American Indian Reservations. Albuquerque, New Mexico. BowArrow Publishing Company.

U.S. Bureau of the Census. 2001a. Summary Tape Files 1 and 3 (Population, Demographic Characteristics, and Housing).

U.S. Bureau of the Census. 2001b. Table A98-30 (Estimated Number and Percent People of All Ages in Poverty by County: Montana).

U.S. Bureau of the Census. 2001. Profile of General Demographic Characteristics for 2000

U.S. Army Corps of Engineers. 2001. Missouri River master water control manual review revised draft environmental impact statement. Omaha, Nebraska.

U.S. Department of the Interior (USDI). 2001. Biological assessment – Operations of the Lower Yellowstone Project, Intake, Montana, including proposed modifications. Billings, Montana.

U.S. Fish and Wildlife Service (USFWS). 1993. Recovery plan for the pallid sturgeon. USFWS, Bismarck, North Dakota.

U.S. Fish and Wildlife Service (USFWS). 2000a. Biological opinion on operation of the Missouri River mainstem reservoir system. USFWS, Bismarck, North Dakota.

U.S. Fish and Wildlife Service (USFWS). 2000b. Estimated drift speed of larval sturgeon. Technical Notes. USFWS Missouri River Wildlife Management Assistance Office, Bismarck, North Dakota.

Watson Engineering. No date. Water conservation plan - Fort Peck Reservation Rural Water System and Dry Prairie Rural Water System. Unpublished Report. Helena, Montana.

Watson Engineering. 2002. Final engineering Report - Fort Peck Assiniboine and Sioux Water Supply System and Dry Prairie Rural Water System. Unpublished Report. Helena, Montana.

Williams, J., Traffic and Safety Bureau, Montana Department of Transportation, Helena, Montana. 2002. Personal communication (January 17, 2002).

Williston Convention and Visitor Bureau. 2001. Selected lodging information.

# APPENDIX A

# CONTAMINANT SURVEY FORMS

# Low-Intensity
# Rural, Residential, Crop/Agricultural, etc.
# Real Property Questionnaire Checklist
# Phase I

INSTRUCTIONS: Circle for each question. Explain briefly on back if a "yes" or "unknown" are circled. Indicate whether a phase II assessment will be recommended. Attach a legal description of the real estate property covered by this survey.

A. Background Information.

Region_____

Project _____

Property ID _____ County _____ State _____

Owner(s) _____

Date of survey _____

| Question | Owner/and or Occupant | | | Observed during visual inspection | | |
|---|---|---|---|---|---|---|
| 1. Currently or in the past has the *property* or any *adjoining property* being or been used for an industrial use such as: gasoline station, motor repair facility, junkyard or landfill, or recycling facility? | Yes | No | Unk | Yes | No | Unk |
| 2. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded vehicle batteries, or pesticides, paints, or other chemicals (disregard petroleum products) in individual containers of greater than 25 gal in volume or 100 gal in the aggregate, stored on or used on the *property* or at the facility? | Yes | No | Unk | Yes | No | Unk |
| 3. Are there currently, or to the best of your knowledge have there been previously, any *drums* (typically 55 gal or sacks of chemicals materials stored on the property or at the facility? | Yes | No | Unk | Yes | No | Unk |
| 4. Has *fill material* been brought onto the property that originated from a hazardous material contaminated site? | Yes | No | Unk | Yes | No | Unk |
| 5. Are there currently, or to the best of your knowledge have there been previously, any *pits, ponds, or lagoons* located on the *property* associated with waste treatment or waste disposal? | Yes | No | Unk | Yes | No | Unk |
| 6. Is there currently, or to the best of your knowledge has there been previously, any significantly stained soils on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 7. Are there currently, or to the best of your knowledge have there been previously, any leaking storage tanks (above or underground) located on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 8. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system? | Yes | No | Unk | Yes | No | Unk |
| 9. To the best of your knowledge, have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*? | Yes | No | Unk | | | |
| 10. To the best of your knowledge, has any part of the area been used as a spray operation base: air strip, equipment parking area? | Yes | No | Unk | | | |
| 11. Is their currently, or to the best of your knowledge has their been structures containing asbestos located on the property and/or has any asbestos been buried on the property? | Yes | No | Unk | Yes | No | Unk |
| 12. Is their evidence of chemical contamination e.g., vegetation different from surrounding for no apparent reason, bare ground, sterile water bodies etc? | Yes | No | Unk | Yes | No | Unk |
| 13. Is there a transformer, capacitor, or any hydraulic equipment for which there is documentation indicating the presence of PCBs? | Yes | No | Unk | Yes | No | Unk |

# High-Intensity Use
# Industrial, Commercial, Feedlots Etc.
# Real Property Questionnaire Checklist
# Phase I

(Criteria more restrictive than Low-intensity are underlined)

INSTRUCTIONS: Circle for each question. Explain briefly on back if a "yes" or "unknown" are circled. Indicate whether a phase II assessment will be recommended. Attach a legal description of the real estate property covered by this survey.

A. Background Information.

Region _____

Project _____

Property ID _____ County _____ State _____

Owner(s) _____

Date of survey _____

| Question | Owner/and or Occupant | | | Observed During Visual Inspection | | |
|---|---|---|---|---|---|---|
| 1. Is the *property* or to the best of your knowledge, has the *property* or any *adjoining property* used for an industrial use? | Yes | No | Unk | Yes | No | Unk |
| 2. Is or to the best of your knowledge has the *property* or any *adjoining property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? | Yes | No | Unk | Yes | No | Unk |
| 3. Are there currently, or to the best of your knowledge have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the *property* or at the facility? | Yes | No | Unk | Yes | No | Unk |
| 4. Are there currently, or to the best of your knowledge have there been previously, any industrial *drums* (typically 55 gal or sacks of chemicals located on the property or at the facility? | Yes | No | Unk | Yes | No | Unk |
| 5. Has *fill material* been brought onto the property that originated from a contaminated site? | Yes | No | Unk | Yes | No | Unk |
| 6. Are there currently, or to the best of your knowledge have there been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal? | Yes | No | Unk | Yes | No | Unk |
| 7. Is there currently, or to the best of your knowledge has there been previously, any significantly stained soil and/or dead vegetation on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 8. Are there currently, or to the best of your knowledge have there been previously, any leaking storage tanks (above or underground) located on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 9. Are there currently, or to the best of your knowledge have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 10. Are there currently, or to the best of your knowledge have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other then water or are emitting chemical type foul odors? | Yes | No | Unk | Yes | No | Unk |
| 11. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system? | Yes | No | Unk | Yes | No | Unk |
| 12. Does the owner or occupant of the property have any knowledge of governmental notification relating to past or recurrent violations of environmental laws with respect to the property or any facility located on the property? | Yes | No | Unk | | | |
| 13. Does the owner or occupant of the property have any knowledge of any *environmental site assessment* of the property or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*? | Yes | No | Unk | | | |
| 14. Does the property discharge waste water on or adjacent to the property other than storm water into a sanitary sewer system? | Yes | No | Unk | Yes | No | Unk |
| 15. To the best of your knowledge, have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*? | Yes | No | Unk | Yes | No | Unk |
| 16. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? | Yes | No | Unk | Yes | No | Unk |

## Public Records/Historical Sources Inquiry

| | | |
|---|---|---|
| 17. Do any of the following Federal government record systems list the property or any property within the circumference of the area noted below: | Yes | No |
| National Priorities List–within 1.0 mile (1.6 Km)? | Yes | No |
| CERCLIS List–within 1.5 mile (0.8 Km)? | Yes | No |
| RCRA TSD Facilities–within 1.0 mile (1.6 Km)? | Yes | No |
| 18. Do any of the following state record systems list the property or any property within the circumference of the area noted below: | Yes | No |
| List maintained by state environmental agency of hazardous waste sites identified for investigation or remediation that is the state agency equivalent to NPL–within approximately 1.0 mile (1.6 Km)? | Yes | No |
| List maintained by state environmental agency of sites identified for investigation or remediation that is the state equivalent to CERCLIS–within 0.5 mile (0.8 Km)? | Yes | No |
| Leaking Underground Storage Tank (LUST) List–within 0.5 mile (0.8 Km)? | Yes | No |
| Solid Waste/Landfill Facilities–within 0.5 mile (0.8 Km)? | Yes | No |
| 19. Based upon a review of *fire insurance maps* or consultation with the local fire department serving the property, are any buildings or other improvements on the property or on an adjoining property identified as having been used for an industrial use or uses likely to lead to contamination of the property? | Yes | No |

Certification (CHECK ONE).

_____ I hereby certify that to the best of my knowledge no contaminants are present on this real estate, and there are no obvious signs of any effects of contamination.

_____ Phase II assessment will be performed. On the basis of the information collected to complete this form, it is possible to reasonably conclude that there is a potential for contaminants, or the effects of contaminants, to be present on that real estate

Examiner

Examiner represents that to the best of his/or her's knowledge the above statements and facts are true and correct.

Signed _____ Print Name _____

Date _____ Title _____

Approving Official

I concur with the above certification

Signed _____ Print Name _____

Date _____ Title _____

**Additional information**

Question #____ Comment:

Question #____ Comment:

## Public Records/Historical Sources Inquiry

| | | |
|---|---|---|
| 14. Do any of the following Federal government record systems list the property or any property within the circumference of the area noted below: | Yes | No |
| National Priorities List–within 1.0 mile (1.6 Km)? | Yes | No |
| CERCLIS List–within 1.5 mile (0.8 Km)? | Yes | No |
| RCRA TSD Facilities–within 1.0 mile (1.6 Km)? | Yes | No |
| 15. Do any of the following state record systems list the property or any property within the circumference of the area noted below: | Yes | No |
| List maintained by state environmental agency of hazardous waste sites identified for investigation or remediation that is the state agency equivalent to NPL–within approximately 1.0 mile (1.6 Km)? | Yes | No |
| List maintained by state environmental agency of sites identified for investigation or remediation that is the state equivalent to CERCLIS–within 0.5 mile (0.8 Km)? | Yes | No |
| Leaking Underground Storage Tank (LUST) List–within 0.5 mile (0.8 Km)? | Yes | No |
| Solid Waste/Landfill Facilities–within 0.5 mile (0.8 Km)? | Yes | No |

Certification (CHECK ONE).

_____ I hereby certify that to the best of my knowledge no contaminants are present on this real estate, and there are no obvious signs of any effects of contamination.

_____ On the basis of the information collected to complete this form, it is possible to reasonably conclude that there is a potential for contaminants, or the effects of contaminants, to be present on that real estate. Phase II assessment will be performed.

Examiner

Examiner represents that to the best of his/or her's knowledge the above statements and facts are true and correct.

Signed _____ Print Name _____

Date _____ Title _____

Approving Official

I concur with the above certification

Signed _____ Print Name _____

Date _____ Title _____

**Additional Information**

Question #____ Comment

Question #____ Comment

Question #____ Comment

# APPENDIX B

## STATE AND FEDERAL LANDS LIKELY TO BE CROSSED IN THE PROJECT AREA

# State Land Likely to be Crossed by Pipelines for the FPRRWS

| County | T.R. and Sec. | Lease # | Use | Miles Crossed |
|---|---|---|---|---|
| Valley | 30N,40E, Sec 29 | 3711 | Grazing/crops | 0.5 |
| Valley | 30N, 40E, Sec.20 | 3711 | Grazing/crops | 0.5 |
| Valley | 30N, 40E, Sec.17 | 4072 | Grazing | 0.5 |
| Valley | 30N, 40E, Sec.5 | 6368 | Grazing/crops | 1.0 |
| Valley | 31N, 40E, Sec.32 | 1272 | Grazing/crops | 1.0 |
| Valley | 31N, 40E, Sec.29 | 3710 | Grazing/crops | 1.0 |
| Valley | 31N, 40E, Sec.20 | 2172 | Grazing | 0.25 |
| Valley | 31N, 40E, Sec.17 | 6927 | Grazing | 0.75 |
| Valley | 31N, 40E, Sec.8 | 9042 | Grazing | 1.0 |
| Valley | 31N, 40E, Sec.5 | 9042 | Grazing | 1.0 |
| Valley | 32N, 40E, Sec.32 | 9051 | Grazing | 1.0 |
| Valley | 32N, 40E, Sec.29 | 9051 | Grazing | 1.0 |
| Valley | 30N, 40E, Sec.6 | 814 | Grazing/CRP | 1.0 |
| Valley | 32N, 40E, Sec.20 | 9045 | Grazing | 1.0 |
| Valley | 32N, 40E, Sec.17 | 9045 | Grazing | 1.0 |
| Valley | 32N, 40E, Sec.8 | 10026 | Grazing | 0.5 |
| Valley | 32N, 40E, Sec.5 | 9045 | Grazing | 0.5 |
| Valley | 33N, 40E, Sec.3 | 4829 | Grazing/crops | 1.0 |
| Valley | 34N, 40E, Sec.16 | 3699 | Grazing/crops | 1.0 |
| Valley | 35N, 43E, Sec.1 | 3721 | Grazing | 0.25 |
| Daniels | 36N, 43E, Sec.30 | 1570 | Crops | 0.5 |
| Daniels | 36N, 43E, Sec.29 | 9818 | Grazing | 1.0 |
| Daniels | 36N, 43E, Sec.28 | 9818 | Grazing | 0.75 |
| Daniels | 36N, 43E, Sec.33 | 9818 | Grazing | 0.25 |
| Daniels | 36N, 43E, Sec.34 | 3812 | Grazing | 1.0 |
| Daniels | 36N, 43E, Sec.35 | 3812 | Grazing | 1.0 |
| Daniels | 36N, 43E, Sec.36 | 6612 | Grazing/crops | 2.0 |
| Daniels | 36N, 43E, Sec.26 | 3812 | Grazing/crops | 1.0 |
| Daniels | 36N, 43E, Sec.23 | 403 | Grazing/crops | 0.5 |
| Daniels | 36N, 43E, Sec.14 | 403 | Grazing/crops | 1.0 |
| Daniels | 36N, 43E, Sec.11 | 5901,9818 | Grazing/crops | 0.5 |
| Daniels | 37N, 43E, Sec.33 | 6303,1598 | Grazing/CRP | 0.75 |
| Daniels | 37N, 43E, Sec.28 | 2986,430 | Grazing/crops | 1.0 |
| Daniels | 37N, 43E, Sec.20 | 2973,1597 | Grazing/crops | 1.25 |
| Daniels | 37N, 43E, Sec.17 | 1597 | Grazing/crops | 0.5 |
| Daniels | 37N, 43E, Sec.9 | 6312,9923 | Grazing | 0.25 |
| Daniels | 37N, 43E, Sec.4 | 9923 | Grazing | 0.75 |
| Daniels | 35N, 44E, Sec.6 | 1570 | Crops | 0.5 |
| Daniels | 35N, 44E, Sec.5 | 170,2743 | Grazing/crops | 0.5 |
| Daniels | 35N, 44E, Sec.2 | 1054 | Grazing/crops | 0.5 |
| Daniels | 35N, 44E, Sec.1 | 6617 | Grazing/crops | 1.0 |
| Daniels | 35N, 45E, Sec.6 | 173 | Grazing/crops | 1.0 |
| Daniels | 35N, 45E, Sec.4 | 178 | Grazing/crops | 1.0 |
| Daniels | 35N, 46E, Sec.6 | 2826 | Grazing/crops | 0.5 |
| Daniels | 35N, 46E, Sec.5 | 2826 | Grazing/crops | 0.5 |
| Daniels | 35N, 46E, Sec.4 | 2820/1581 | Grazing/crops | 1.0 |
| Daniels | 35N, 46E, Sec.3 | 852/5037 | Grazing/crops | 1.0 |
| Daniels | 35N, 46E, Sec.2 | 2241/1632 | Grazing/crops | 1.0 |
| Daniels | 35N, 47E, Sec.3 | 2243/2823 | Grazing/crops | 1.0 |
| Daniels | 35N, 47E, Sec.12 | 7411/2858 | Grazing | 1.0 |
| Daniels | 37N, 47E, Sec36 | 4360 | Crops | 1.0 |
| Daniels | 37N, 47E, Sec.27 | 547 | Grazing/crops | 1.0 |
| Daniels | 37N, 46E, Sec.25 | 2852 | Grazing | 0.5 |
| Daniels | 37N, 47E, Sec.30 | 408 | Grazing/crops | 0.5 |
| Daniels | 35N, 51E, Sec.8 | 6821 | Grazing/crops | 0.5 |
| Daniels | 37N, 46E, Sec.36 | 2852 | Grazing/crops | 2.0 |
| Daniels | 37N, 46E, Sec.27 | 6458 | Grazing | 0.75 |
| Daniels | 37N, 46E, Sec.25 | 2852 | Grazing | 1.0 |
| Daniels | 37N, 47E, Sec.27 | 547 | Grazing/crops | 0.25 |
| Daniels | 37N, 47E, Sec.36 | 4360 | Crops | 1.0 |

| Daniels | 35N, 48E, Sec.16 | File lost | File lost | File lost |
|---|---|---|---|---|
| Sheridan | 35N, 51E, Sec.2 | 6443 | Grazing/crops | 0.25 |
| Sheridan | 36N, 52E, Sec.32 | 8249 | Grazing/crops | 1.0 |
| Sheridan | 36N, 52E, Sec.29 | 8249 | Grazing | 0.25 |
| Sheridan | 36N, 52E, Sec.16 | 2093 | Grazing | 0.5 |
| Sheridan | 37N, 51E, Sec.36 | 6744 | Grazing | 0.75 |
| Sheridan | 37N, 51E, Sec.25 | 7696 | Grazing | 0.25 |
| Sheridan | 37N, 51E, Sec.23 | 10133 | Grazing | 0.25 |
| Sheridan | 37N, 52E, Sec.15 | 6952 | Grazing | 0.25 |
| Sheridan | 37N, 52E, Sec.16 | 970 | Grazing | 0.5 |
| Sheridan | 35N, 52E, Sec.11 | 3359 | Grazing/CRP | 0.25 |
| Sheridan | 34N, 52E, Sec.36 | 8323 | Grazing | 2.0 |
| Sheridan | 34N, 53E, Sec.16 | 7695 | Grazing | 1.0 |
| Sheridan | 35N, 54E, Sec.16 | 4963 | Grazing | 1.0 |
| Sheridan | 35N, 55E, Sec.21 | 8376 | Grazing/CRP | 0.5 |
| Sheridan | 35N, 55E, Sec.36 | 979 | Grazing | 0.5 |
| Sheridan | 35N, 56E, Sec.36 | 4479 | Grazing | 1.0 |
| Sheridan | 37N, 56E, Sec.36 | 4792 | Grazing/crops | 1.0 |
| Sheridan | 36N, 57N, Sec.36 | 4243 | Grazing | 1.0 |
| Sheridan | 35N, 58N, Sec.36 | 6818 | Grazing/CRP | 1.0 |
| Roosevelt | 28N, 56E, Sec.16 | 1151 | Grazing | 0.25 |
| Roosevelt | 28N, 56E, Sec.20 | 2047 | Grazing | 0.25 |
| Roosevelt | 30N, 56E, Sec.16 | 7077 | Grazing/crops | 0.5 |
| Roosevelt | 29N, 58E, Sec.16 | 7080 | Grazing/crops | 1.0 |
| Roosevelt | 29N, 59E, Sec.16 | 4467 | Grazing/CRP | 1.0 |

## Federal Lands Likely to be Crossed by FPRRWS Pipelines

| County | Agency | T.R.Sec. | Use | Miles Crossed |
|---|---|---|---|---|
| Valley | BLM | 30N,40E,Sec.32 | L.U. lands | 0.5 |
| Valley | BLM | 30N, 40E,Sec.29 | L.U. lands | 0.5 |
| Valley | BLM | 30N, 39E,Sec.2 | L.U. lands | 0.5 |
| Valley | BLM | 30N, 39E,Sec.3 | L.U. lands | 0.25 |
| Valley | BLM | 28N,41E,Sec.27 | L.U. lands | 0.25 |
| Valley | BLM | 28N,41E,Sec.35 | L.U. lands | 0.25 |
| Roosevelt | BLM | 27N,59E,Sec.32 | BLM | 0.25 |
| Roosevelt | USFWS | 30N,58E,Sec.23 | Easement on private lands | 1.0 |
| Roosevelt | USFWS | 30N,58E,Sec26 | Easement on private lands | 1.0 |
| Roosevelt | USFWS | 29N,58E,Sec.1 | Easement on private lands | 1.0 |
| Roosevelt | USFWS | 29N,58E,Sec.2 | Easement on private lands | 1.0 |
| Roosevelt | USFWS | 29N,58E,Sec.3 | Easement on private lands | 1.0 |
| Roosevelt | USFWS | 29N,58E,Sec.13 | Easement on private lands | 0.5 |
| Sheridan | USFWS | 31N,55E,Sec.1 | Medicine Lake NWR | 0.5 |
| Sheridan | USFWS | 32N,55E,Sec.36 | Medicine Lake NWR | 1.0 |
| Sheridan | USFWS | 32N,57E,Sec.28 | Medicine Lake NWR | 1.0 |
| Sheridan | USFWS | 32N,57E,Sec.33 | Medicine Lake NWR | 0.5 |
| Sheridan | USFWS | 32N,57E,Sec.32 | Medicine Lake NWR | 1.5 |
| Sheridan | USFWS | 31N,57E,Sec.5 | Medicine Lake NWR | 1.0 |
| Sheridan | USFWS | 31N,57E,Sec.9 | Medicine Lake NWR | 0.5 |
| Sheridan | USFWS | 32N,57E,Sec.21 | Medicine Lake NWR | 0.5 |
| Sheridan | USFWS | 32N,57E,Sec.27 | Medicine Lake NWR | 0.5 |
| Sheridan | USFWS | 32N,58E,Sec.11 | Easement on private land | 1.0 |
| Sheridan | USFWS | 32N,58E,Sec.2 | Easement on private land | 1.0 |
| Sheridan | USFWS | 32N,58E,Sec.1 | Easement on private land | 0.5 |
| Sheridan | USFWS | 33N,59E,Sec.6 | Easement on private land | 1.5 |
| Sheridan | USFWS | 33N,58E,Sec.36 | Easement on private land | 0.5 |
| Sheridan | USFWS | 33N,58E,Sec.25 | Waterfowl production area | 1.0 |
| Sheridan | USFWS | 33N,58E,Sec.24 | Waterfowl production area | 0.5 |
| Sheridan | USFWS | 32N,56E,Sec.20 | Easement on private land | 1.0 |
| Sheridan | USFWS | 33N,58E,Sec.8 | Easement on private land | 0.5 |
| Sheridan | USFWS | 34N,58E,Sec.22 | Easement on private land | 0.5 |
| Sheridan | USFWS | 34N,58E,Sec.23 | Easement on private land | 1.0 |
| Sheridan | USFWS | 34N,58E,Sec.24 | Easement on private land | 0.5 |
| Sheridan | USFWS | 35N,58E,Sec.13 | Waterfowl production area | 0.5 |
| Sheridan | USFWS | 35N,58E,Sec.14 | Easement on private land | 0.25 |
| Sheridan | USFWS | 35N,58E,Sec.11 | Easement on private land | 1.25 |
| Sheridan | USFWS | 35N,58E,Sec.3 | Waterfowl production area | 1.0 |
| Sheridan | USFWS | 36N,58E,Sec.25 | Easement on private land | 1.0 |
| Sheridan | USFWS | 36N,58E,Sec.27 | Easement on private land | 1.0 |
| Sheridan | USFWS | 36N,58E,Sec.13 | Easement on private land | 1.0 |
| Sheridan | USFWS | 36N,58E,Sec.11 | Easement on private land | 0.5 |
| Sheridan | USFWS | 36N,58E,Sec.21 | Easement on private land | 0.5 |
| Sheridan | USFWS | 36N,58E,Sec.30 | Easement on private land | 0.25 |
| Sheridan | USFWS | 37N,58E,Sec.7 | Easement on private land | 0.5 |
| Sheridan | USFWS | 36N,57E,Sec.4 | Easement on private land | 1.0 |
| Sheridan | USFWS | 36N,57E,Sec.8 | Easement on private land | 1.0 |
| Sheridan | USFWS | 37N,57E,Sec.1 | Easement on private land | 0.5 |
| Sheridan | USFWS | 36N,56E,Sec.4 | Easement on private land | 1.0 |
| Sheridan | USFWS | 36N,56E,Sec.9 | Easement on private land | 1.0 |
| Sheridan | USFWS | 34N,52E,Sec.15 | Easement on private land | 1.0 |
| Sheridan | USFWS | 37N,54E,Sec.17 | Easement on private land | 0.25 |
| Daniels | USFWS | 35N,50E,Sec.8 | Waterfowl production area | 0.25 |

# APPENDIX C

## WETLANDS LIKELY TO BE CROSSED IN THE PROJECT AREA

# Wetlands on Fort Peck Reservation Service Area

| Quad. Map | T.R. Sec. | Drainage | Cowardin Type | H.G.M Type | Width at Row | Category |
|---|---|---|---|---|---|---|
| Alkali Coulee | T32N, R55E, Sec.7 | Trib. Wolf Creek | PEMC/PABFA | Riverine | 5 feet | III |
| Alkali Coulee | T32N, R55E, Sec.10 | Alkali Coulee | PEMC | Riverine | 80 feet | III |
| Alkali Coulee | T32N, R55E, Sec.2/11 | Un-named Trib. | PEMC/PEMA | Riverine | 300 feet | IV |
| Alkali Coulee | T33N, R55E, Sec.22/27 | Otter Creek | PEMC | Riverine | 50 feet | III |
| Alkali Coulee | T33N, R55E, Sec.16/21 | Trib. Otter Creek | PEMC | Riverine | 25 feet | III |
| Alkali Coulee | T33N, R55E, Sec.17/20 | Otter Creek | PEMC | Riverine | 50 feet | III |
| Alkali Coulee | T33N, R55E, Sec.13/24 | Alkali Coulee | PEMC | Riverine | 60 Feet | III |
| Badger Creek | T28N, R50E, Sec.1 | Trib. Poplar R. | PSSA | Depressional | 250 feet | III |
| Badger Creek | T29N, R50E, Sec.33 | Little Badger Creek | PEMC | Riverine | 150 feet | III |
| Badger Creek | T29N, R50E, Sec.34 | Badger Creek | PEMC | Riverine | 40 feet | III |
| Badger Creek | T29N, R50E, Sec.33 | Un-named | PEMC | Depressional | 200 feet | III |
| Badger Creek | T28N, R51E, Sec.21 | Trib. Poplar R. | PEMC | Riverine | 55 feet | IV |
| Beam School | T31N, R52E, Sec.2 | Un-named Trib. | PEMC | Riverine | 20 feet | IV |
| Beam School | T31N, R52E, Sec.23 | Smoke Creek | ROW/PEMC | Riverine | 250 feet | II |
| Beam School | T31N, R52E, Sec. 10 | Un-named Trib. | PEMC | Riverine | 10 feet | IV |
| Beam School | T31N, R52E, Sec.2 | Un-named Trib. | PEMC | Riverine | 20 feet | IV |
| Baylor S.E. | T33N, R42E, Sec.17 | Snow Coulee | PEMC | Riverine | 250 feet | III |
| Baylor S.E. | T33N, R41E, Sec.15/22 | Trib. Snow Coulee | PEMC | Riverine | 200 feet | III |
| Baylor S.E. | T33N, R41E, Sec.34/35 | Snow Coulee | PEMC | Riverine | 200 feet | III |
| Bears Nest | T31N, R48E, Sec.14 | Un-named Trib. | PSS | Slope | 20 feet | III |
| Bears nest | T31N, R48E, Sec.12 | Un-named Trib. | PSS | Slope | 20 feet | III |
| Bears Nest | T31N, R48E, Sec.1 | Sage Creek | PSS | Slope | 20 feet | III |
| Bears Nest | T32N, R48E, Sec.36 | Un-named Trib. | PEM | Slope | 50 feet | IV |
| Bears Nest | T32N, R48E, Sec.25 | Un-named Trib. | PEM | Slope | 25 feet | IV |
| Bredette | T32N, R49E, Sec.24 | Trib. Poplar River | PEMC | Riverine | 50 feet | III |
| Bredette | T32N, R49E, Sec. 12 | Trib. Poplar River | PEMC | Riverine | 25 feet | III |
| Bredette | T32N, R49E, Sec. 14 | Trib. Poplar River | PSS | Slope | 25 feet | III |
| Bredette | T32N, R49E, Sec.2 | Trib. Poplar River | PEMC | Riverine | 25 feet | IV |
| Bredette | T33N, R49E, Sec.15 | Un-named Trib. | PSS | Riverine | 50 feet | IV |
| Brockton | T27N, R52E, Sec.2/3 | Un-named Trib. | PEMA/PEMC | Depressional | 650 feet | IV |
| Brockton | T28N, R53E, Sec.29 | Un-named Trib. | PSS | Slope | 10 feet | IV |
| Brockton | T28N, R53E, | Un-named Trib. | PMBFA/PEMC | Riverine | 25 feet | III |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Sec.16 | | | | | |
| Brockton | T28N, R52E, Sec.6 | Un-named Trib. | PEMC | Riverine | 250 feet | III |
| Brockton | T29N, R52E, Sec.35 | Un-named | PEMC | Depressional | 250 feet | III |
| Brockton | T29N, R52E, Sec.27 | Un-named | PEMC | Depressional | 75 feet | IV |
| Brockton | T29N, R52E, Sec.22/23/26 | McIlwain Lake | L2AB | Depressional | 1,200 feet | II |
| Brockton | T29N, R52E, Sec.25/36 | Un-named Trib. | PEMC | Riverine | 50 feet | III |
| Bullhead Res. | T31N, R41E, Sec.25 | Porcupine Creek | PEMC/PFO | Riverine | 50 feet | III |
| Calais | T28N, R53E, Sec.26 | Un-named | PEMA/PEMF | Depressional | 1,000 feet | III |
| Calais | T29N, R53E, Sec.31 | Trib. Lake Creek | PEMC | Riverine | 50 feet | III |
| Cameron Point | T33N, R40E, Sec.16/21 | Un-named Trib. | PSS | Riverine | 40 feet | IV |
| Cameron Point | T33N, R40E, Sec.13 | Middle Fork | PEMC | Riverine | 100 feet | III |
| Cameron Point | T33N, R41E, Sec.18 | Middle Fork | PEMC | Riverine | 50 feet | III |
| Chelsea | T29N, R49E, Sec.27 | Box Elder Creek | PEM | Riverine | 150 feet | III |
| Chelsea N.W. | T27N, R48E, Sec.1 | Un-named | PEM | Depressional | 1,000 feet | III |
| Chelsea N.W. | T27N, R49E, Sec.6 | Un-named | PEM | Depressional | 1,000 feet | III |
| Chelsea N.W. | T28N, R49E, Sec.32 | Tule Creek | PEM | Riverine | 100 feet | III |
| Chelsea N.W. | T28N, R49E, Sec.33 | Un-named Trib. | PSS | Riverine | 25 feet | IV |
| Chelsea N.W. | T28N, R49E, Sec.34 | Chelsea Creek | PEMC | Riverine | 50 feet | III |
| Chelsea N.W. | T28N, R48E, Sec.14 | Tule Creek | PEMC | Riverine | 50 feet | III |
| Chelsea N.W. | T28N, R48E, Sec.11 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Chelsea N.W. | T28N, R48E, Sec.33 | Un-named | PSS | Slope | 60 feet | III |
| Chelsea N.W. | T29N, R48E, Sec.28 | Un-named | PSS | Slope | 25 feet | III |
| Coyote Coulee | T29N, R53E, Sec.10 | South Branch Coulee | PEMC | Riverine | 25 feet | III |
| Coyote Coulee | T30N, R53 E, Sec.34 | Spring Creek | PEMC | Riverine | 50 feet | III |
| Coyote Coulee | T29N, R53E, Sec.3 | Un-named | PEMC | Depressional | 250 feet | IV |
| Coyote Coulee | T30N, R53E, Sec. 31 | Un-named | PEMC | Depressional | 500 feet | IV |
| Coyote Coulee | T30N, R54E, Sec.7 | Smoke Creek | PEMC | Riverine | 250 feet | II |
| Dubbe Reservoir | T27N, R44E, Sec.4 | Little Porcupine Creek | PEMC/PFO | Riverine | 250 feet | II |
| Dubbe Reservoir | T28N, R44E, Sec.33 | Little Porcupine Creek | PEMC/PFO | Riverine | 250 feet | II |
| Dubbe Reservoir | T28N, R44E, Sec.28 | Little Porcupine Creek | PEMC/PFO | Riverine | 250 feet | II |
| Dubbe Reservoir | T28N, R44E, Sec.14/23 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Flagstaff Hill | T33N, R53E, Sec.25 | Un-named Trib. | PEMC | Riverine | 30 feet | IV |
| Flagstaff Hill | T33N, R54E, Sec.30 | Un-named Trib. | PEMC | Riverine | 20 feet | IV |
| Flagstaff Hill | T33N, R54E, Sec.20 | Crazy Horse Creek | PEMC/PEMA | Riverine | 250 feet | III |
| Flagstaff Hill | T33N, R53E, | Un-named Trib. | PEMC | Riverine | 200 feet | III |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Sec.23 | | | | | |
| Flynn Creek N. | T28N, R46E, Sec.34 | Littleman Creek | PEMC | Riverine | 50 feet | IV |
| Flynn Creek N. | T29N, R46E, Sec.32 | Badger Hole Coulee | PEMC | Riverine | 75 feet | III |
| Flynn Creek S. | T27N, R46E, Sec.32 | Un-named Trib. | PEMC | Riverine | 50 feet | IV |
| Flynn Creek S. | T27N, R45E, Sec.36 | Barrow Pit | PSS/PF0 | Depressional | 400 feet | III |
| Flynn Creek S. | T27N, R46E, Sec.30 | Flynn Creek | PEMC | Riverine | 25 feet | IV |
| Flynn Creek S. | T27N, R46E, Sec.21 | Un-named Trib. | PEMC | Riverine | 75 feet | IV |
| Flynn Creek S. | T27N, R46E, Sec. 23 | Littleman Creek | PEMC | Riverine | 50 feet | III |
| Flynn Creek S. | T27N, R46E, Sec. 35 | Barrow Pit | PFO | Depressional | 500 feet | IV |
| Fort Kipp | T28N, R55E, Sec.30 | Barrow Pit | PEMA/PEMC | Depressional | 500 feet | IV |
| Fort Kipp | T28N, R54E, Sec.27 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Fort Kipp | T28N, R55E, Sec.21 | Big Muddy Creek | R4SBF | Riverine | 500 feet | II |
| Fort Kipp | T28N, R54E, Sec.1 | Un-named | PEMA | Depressional | 50 feet | III |
| Fort Kipp | T28N, R54E, Sec.33 | Un-named | PEMC | Depressional | 250 feet | III |
| Frazer | T27N, R44E, Sec.28 | Little Porcupine Creek | PSS/PFO/PEM | Riverine | 250 feet | II |
| Frazer | T28N, R44E, Sec.28 | Barrow Pit | PSS/PF0 | Depressional | 500 feet | III |
| Frazer | T28N, R44E, Sec.29 | Barrow Pit | PSS/PFO | Depressional | 500 feet | III |
| Frazer | T28N, R44E, Sec.29 | E. Fork Porcupine Creek | PSS/PFO | Riverine | 200 feet | III |
| Geddart Lake | T30N, R51E, Sec.27/28 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Geddart Lake | T30N, R51E, Sec.15 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Haugens Hill | T32N, R44E, Sec.22 | Un-named Trib. | PEMC | Riverine | 10 feet | IV |
| Haugens Hill | T32N, R44E, Sec.22 | Un-named Trib. | PEMC | Riverine | 60 feet | IV |
| Haugens Hill | T32N, R44E, Sec.15 | Un-named Trib. | PEMC | Riverine | 5 feet | IV |
| Hay Creek | T31N, R51E, Sec.27/28 | Hay Creek | PEMC/PSS | Riverine | 30 feet | III |
| Hay Creek | T31N, R51E, Sec.9/10 | Un-named Trib. | PSS/PEM | Riverine | 50 feet | III |
| Hay Creek N.W. | T31N, R50E, Sec.22 | Lone Tree Creek | PEMC | Riverine | 25 feet | III |
| Hay Creek N.W. | T31N, R50E, Sec.30/31 | Swank Coulee | PEMC | Riverine | 200 feet | III |
| Homestead N.W. | T31N, R54E, Sec.21/28 | Un-named Trib. | PEMC | Riverine | 250 feet | III |
| Homestead N.W. | T32N, R54E, Sec.27 | Sauerkraut Coulee | PEMC | Riverine | 50 feet | III |
| Jakes Coulee | T33N, R47E, Sec.24/25 | Police Creek | PEMC | Riverine | 250 feet | III |
| Jakes Coulee | T33N, R47E, Sec.14 | Police Creek | PEMC | Riverine | 250 feet | III |
| Kintyre | T27N, R43E, Sec.20 | Un-named Trib. | PSS | Riverine | 50 feet | III |
| Larslan | T33N, R42E, Sec.16/17 | E. Fork Snow Coulee | PEM | Riverine | 400 feet | III |
| Larslan | T33N, R43E, Sec.18 | L. Porcupine Creek | PEM | Riverine | 300 feet | III |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lustre | T31N, R45E, Sec.31 | Tree Coulee | PEM | Riverine | 100 feet | III |
| Lustre | T31N, R44E, Sec.34 | Un-named Trib. | PEM | Riverine | 10 feet | IV |
| Lustre | T31N, R45E, Sec.5/6 | Un-named Trib. | PSS | Riverine | 100 feet | III |
| Lustre | T32N, R45E, Sec 31/32 | Cottonwood Creek | PEM | Riverine | 50 feet | III |
| Lustre | T32N, R44E, Sec.34 | E. Fork Porcupine Creek | PEM | Riverine | 200 feet | III |
| Macon | T27N, R48E, Sec.9 | Un-named | PEM | Depressional | 1,000 feet | III |
| Macon | T27N, R48E, Sec.3/4 | Un-named | PEM | Depressional | 25 feet | IV |
| Macon | T27N, R48E, Sec5 | Un-named | PEM | Drepressional | 500 feet | III |
| Macon | T27N, R47E, Sec.11 | Little Wolf Creek | PEM/PFO | Riverine | 50 feet | III |
| Macon | T27N, R47E, Sec.11 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Milk River Coulee | T28N, R43E, Sec.11/14 | W.Fork Charley Creek | PEM | Riverine | 100 feet | III |
| Milk River Coulee | T28N, R43E, Sec.10 | Kintyre Creek | PEM | Riverine | 250 feet | III |
| Milk River Coulee | T28N, R43E, Sec.4/9 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Milk River Coulee | T28N, R43E, Sec.28/29 | Un-named Trib. | PEM | Riverine | 250 feet | III |
| Milk River Coulee | T28N, R43E, Sec.32 | Un-named Trib. | PEM | Riverine | 250 feet | III |
| Milk River Coulee | T28N, R43E, Sec.3 | Charley Creek | PEM | Riverine | 50 feet | III |
| Milk River Hills | T27N, R42E, Sec.10/11 | Milk/Ivy Coulee | PEM | Riverine | 20 feet | IV |
| Mortarstone Bluff | T27N, R52E, Sec.3 | Barrow Pit | PEM | Depressional | 750 feet | IV |
| Nashua | T29N, R41E, Sec.35/36 | Un-named Trib. | PEM | Riverine | 100 feet | III |
| Nickwall | T27N, R50E, Sec.3 | Un-named Trib. | PEM | Riverine | 100 feet | III |
| Nielsen Coulee | T32N, R48E, Sec.11/12 | Trib. Poplar River | PEM | Riverine | 25 feet | III |
| Nielsen Coulee | T32N, R48E, Sec.1 | Poplar River | PEM | Riverine | 500 feet | II |
| Nielsen Coulee | T33N, R48E, Sec.33/34 | Un-named Trib. | PEM | Riverine | 25 feet | IV |
| Nielsen Coulee | T33N, R48E, Sec.21/22 | Woody Draw | PSO | Slope/Riverine | 50 feet | III |
| Nielsen Coulee | T33N, R48E, Sec. 21/22 | Woody Draw | PSO | Slope/Riverine | 50 feet | III |
| North of Volt | T32N, R46E, Sec.14/15 | Cottonwood Creek | PEM | Riverine | 15 feet | III |
| North of Volt | T32N, R46E, Sec.13 | Cottonwood Creek | PEM | Riverine | 100 feet | III |
| Oswego | T27N, R44E, Sec.35/36 | Un-named | PEM | Depressional | 750 feet | III |
| Oswego | T27N, R45E, Sec.27 | Oswego Creek | PSS | Riverine | 25 feet | III |
| Oswego | T27N, R45E, Sec.22 | Un-named Trib. | PEM | Riverine | 15 feet | IV |
| Oswego | T27N, R45E, Sec.14/15 | Un-named Trib. | PEM | Riverine | 70 feet | III |
| Oswego | T27N, R45E, Sec.2/3 | Un-named Trib. | PEM | Riverine | 30 feet | IV |
| Oswego N.W. | T28N, R45E, Sec.34 | Oswego Creek | PEM | Riverine | 100 feet | III |
| Oswego N.W. | T28N, R45E, | Un-named Trib. | PEM | Riverine | 15 feet | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Sec.14/15 | | | | | |
| Oswego N.W. | T28N, R45E, Sec.10/11 | Un-named Trib. | PEM | Riverine | 5 feet | IV |
| Oswego N.W. | T28N, R44E, Sec.11/12 | Un-named Trib. | PEM | Riverine | 50 feet | III |
| Pleasant Prairie | T32N, R51E, Sec.9/10 | Trib. Smoke Creek | PEM | Riverine | 50 feet | III |
| Pleasant Prairie | T32N, R51E, Sec.9/10 | Trib. Smoke Creek | PEM | Riverine | 25 feet | III |
| Pleasant Prairie | T32N, R51 E, Sec.3/4 | Trib. Smoke Creek | PEM/PFO | Riverine | 150 feet | III |
| Pleasant Prairie | T33N, R51E, Sec.31/32 | Smoke Creek | PEM/PSS | Riverine | 500 feet | II |
| Pleasant Prairie | T32N, R51E, Sec.6 | Woody Draw | PSS | Slope | 25 feet | III |
| Pleasant Prairie S.W. | T32N, R50E, Sec.1 | Pond | PFO/PSS | Depressional | 250 feet | III |
| Pleasant Prairie S.W. | T32N, R50E, Sec.4 | Give Out Morgan Creek | PEM | Riverine | 50 feet | IV |
| Pleasant Prairie S.W. | T32N, R50E, Sec.5 | Trib. Give Out Morgan Creek | PEM | Riverine | 25 feet | IV |
| Pleasant Prairie S.W. | T33N, R50E, Sec.21/28 | Un-named | PEM | Depressional | 1,000 feet | III |
| Poplar N.E. | T29N, R51E, Sec.21/22 | Slims Coulee | PSS/PEM | Riverine | 50 feet | III |
| Poplar N.E. | T29N, R51E, Sec.29 | Poplar River | PSS/PEM | Riverine | 250 feet | III |
| Reed Springs | T31N, R48E, Sec.18/19 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Rocky Point | T30N, R54 E, Sec.12/13 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Rocky Point | T30N, R54E, Sec.12/13 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Rocky Point | T30N, R54E, Sec.7/18 | Smoke Creek | PEM/ROW/PSS | Riverine | 250 feet | II |
| Sargent Creek | T29N, R42E, Sec.15/21 | Sargent Creek | PEM | Riverine | 50 feet | III |
| Sims Spring | Sec.23 | Chelsea Creek | PEM | Riverine | 50 feet | III |
| Sims Spring | Sec.9/10 | Chelsea Creek | PEM | Riverine | 100 feet | III |
| Sims Spring | Sec.14/15 | Box Elder Creek | PEM | Riverine | 75 feet | III |
| Smoke Creek S.W. | T29N, R52E, Sec.14/15 | Un-named Trib. | PEM | Riverine | 30 feet | IV |
| Smoke Creek S.W. | T30N, R52E, Sec.17/20 | Un-named Trib. | PEM | Riverine | 25 feet | IV |
| Soo | T32N, R52E, Sec.3 | Un-named Trib. | PEMC | Riverine | 25 feet | IV |
| Soo | T33N, R52E, Sec.33 | Un-named | PEMC | Depressional | 25 feet | IV |
| Soo | T33N, R52 E, Sec.9 | Un-named | PSS | Riverine | 75 feet | III |
| Soo | T33N, R52 E, Sec.10 | Un-named | PEM/PSS | Riverine | 45 feet | III |
| Spring Valley | T31N, R42E, Sec.10 | E. Fork Porcupine Creek | PEM/PSS | Riverine | 50 feet | III |
| Sprole | T27N, R51E, Sec.12 | Un-named Trib. | PEM | Riverine | 250 feet | III |
| Thornwood Ranch | T33N, R53E, Sec.15/22 | Un-named Trib. | PEM | Riverine | 10 feet | IV |
| Thornwood Ranch | T33N, R53E, Sec.16/17 | Un-named Trib. | PEM | Riverine | 55 feet | IV |
| Thornwood Ranch | T33N, R53E, Sec.17/20 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Thornwood Ranch | T33N, R53E, Sec.18/19 | Un-named Trib. | PEM | Riverine | 10 feet | IV |
| Thornwood Ranch | T33N, R52E, Sec.11/12 | Un-named Trib. | PEM | Riverine | 20 feet | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| Thornwood Ranch | T33N, R52E, Sec.24 | Un-named Trib. | PEM | Riverine | 30 feet | IV |
| Thornwood Ranch | T33N, R52 E, Sec.25 | Woody Draw | PEM/PSS | Riverine | 75 feet | III |
| Todd Lakes S.E. | T29N, R46E, Sec.19 | Middle Fork Wolf Creek | PEM/PSS/PFO | Riverine | 100 feet | II |
| Todd Lakes | T29N, R45E, Sec.8 | Dry Fork Wolf Creek | PSS | Riverine | 300 feet | III |
| Todd Lakes | T30 N, R45E, Sec.32/33 | Wolf Creek | PEM | Riverine | 400 feet | II |
| Todd Lakes | T29N, R44E, Sec.3 | Jack Norris Coulee | PEM | Riverine | 250 feet | III |
| Todd Lakes | T30N, R44E, Sec.22 | Un-named | PEM | Depressional | 500 feet | III |
| Todd Lakes | T30N, R44E, Sec.10 | Un-named Trib. | PEM | Riverine | 25 feet | IV |
| Tule Valley E. | T29N, R47E, Sec.21/22 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Tule Valley E. | T30N, R47E, Sec.34 | Tule Valley Creek | PEM | Riverine | 750 feet | III |
| Tule Valley E. | T30N, R47E, Sec.28 | Tule Valley Creek | PEM | Riverine | 1,000 feet | III |
| Tule Valley W. | T29N, R46E, Sec.1/2 | Un-named Trib. | PEM | Riverine | 50 feet | IV |
| Tule Valley W. | T30N, R47E, Sec.17/18 | Tule Valley Creek | PEM | Riverine | 250 feet | III |
| Volt | T31N, R46E, Sec.26/27 | Tule Creek | PEM | Riverine | 50 feet | III |
| Volt | T31N, R46E, Sec.10/15 | Tule Creek | PEM | Riverine | 50 feet | III |
| Wolf Point | T27N, R47E, Sec.17 | Wolf Creek | PEM | Riverine | 30 feet | II |
| Wolf Point | T27N, R47E, Sec.18 | Un-named Trib. | PEM | Riverine | 25 feet | IV |
| Wolf Point | T27N, R46E, Sec.1/2 | Un-named Trib. | PEM | Riverine | 10 | IV |
| Wolf Point N.E. | T28, R47, Sec.11/12 | Un-named Trib. | PEM | Riverine | 25 | IV |
| Wolf Point N.E. | T28N, R47E, Sec.1/2 | Un-named Trib. | PEM | Riverine | 25 | IV |
| Wolf Point N.E. | T29N, R47E, Sec.33/34 | Un-named Trib. | PSS | Riverine | 50 feet | IV |
| Wolf Point N.E. | T29N, R47E, Sec.21/22 | West Fork Tule Creek | PFO | Riverine | 250 feet | III |
| Wolf Point N.W. | T28N, R46E, Sec.1/2 | Un-named Trib. | PEM | Riverine | 5 feet | IV |
| Wolf Point N.W. | T28N, R46E, Sec.14 | Un-named Trib. | PEM | Riverine | 100 feet | IV |
| Poplar | T27N, R50E, Sec.1/2 | Poplar River | RAB | Riverine | 200 feet | II |
| Poplar | T27N, R51E, Sec.6 | Poplar River | RAB | Riverine | 200 feet | II |
| Poplar | T27N, R51E, Sec.9 | Un-named | PEM | Depressional | 500 feet | III |
| Spring Valley W. | T31N, R42E, Sec.10 | E. Porcupine Creek | PEM | Riverine | 25 feet | III |
| Geddart Lake | T29N, R51E, Sec.10 | Poplar River | PEM | Riverine | 200 feet | II |

## Wetlands in the Dry Prairie Service Area

| Quad. Map | T.R.Sec. | Drainage | Cowardin Type | H.G.M Type | Width at ROW | Category |
|---|---|---|---|---|---|---|
| Whately | 29N, 40E, 29 | E. Cherry | PEMC | Riverine | 30 | III |
| Hawk Coulee | 29N 40E 18 | Cherry | PFO | Riverine | 15 | III |
| Hawk Coulee | 29N 39E 14 | Cherry | PFO | Riverine | 30 | III |
| Hawk Coulee | 29N 39E 15 | Unk. Trib. | NW-WUS | | | |
| Hawk Coulee | 30N 40E 8 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Chapman Coulee | 30N 40E 7 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Chapman Coulee | 30N 40E 7 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Chapman Coulee | 31N 40E 17 | — | Gravel Pit | — | 300 | — |
| Dry Fork Coulee | 32N 40E 18 | Dry Fork Creek | PEMC | Riverine | 40 | IV |
| Dry Fork Coulee | 32N 40E 4 | West Fork Porcupine | PEMC | Riverine | 60 | III |
| Baylor | 32N 40E 33 | Middle Fork Porcupine | PEMC | Riverine | 40 | III |
| Baylor | 34N 40E 15 | Trib. Porcupine | PEMC | Riverine | 30 | IV |
| Baylor | 34N 40E 15 | Middle Fork Porcupine | PEMC | Riverine | 50 | III |
| Baylor | 34N 40E 11 | Middle Fork Porcupine | PEMC | Riverine | 50 | III |
| Baylor | 35N 40E 36 | Middle Fork Porcupine | PEMC/PSSC | Riverine | 300 | III |
| Opheim | 35N 40E 13 | Middle Fork Porcupine | PEMC | Riverine | 10 | IV |
| Opheim | 34N 40E 21 | Middle Fork Porcupine | PEMC | Riverine | 20 | IV |
| Opheim | 35N 40E 20 | Middle Fork Porcupine | PEMC | Riverine | 200 | III |
| Opheim | 36N 40E 36 | Snow Coulee | PEMC | Riverine | 20 | IV |
| Opheim | 36N 40E 25 | Snow Coulee | PEMC | Riverine | 20 | IV |
| Opheim | 36N 41E 14 | | PEMB | Slope | 50 | IV |
| Opheim | 36N 41E 18 | Trib. Roanwood Ck. | PSSB | Slope | 300 | III |
| Roanwood | 36n 41E 8 | Roanwood Ck. | PSSB | Slope | 10 | IV |
| Roanwood | 37N 40E 36 | Roanwood Ck. | PEMC | Riverine | 30 | III |
| Ojuel Lake | 36N 40E 21 | Trib. Willow Ck. | PSSY | Slope | 20 | IV |
| Ojuel Lake | 36N 39E 24 | Trib. Willow Ck. | PEMY | Slope | 20 | IV |
| Roanwood | 36N 40E 3 | Trib. Roanwood Ck. | PEMC | Riverine | 20 | IV |
| Glentana West | 36N 42E 20 | Spring Coulee | PEMY | Riverine | 200 | IV |
| Glass Hill | 36N 42E 20 | Trib. Spring Coulee | PSSB | Slope | 30 | IV |
| Glass Hill | 37N 42E 30 | Trib. Spring Coulee | PSSC | Riverine | 30 | IV |
| Glass Hill | 37N 42E 30 | Trib. Spring Coulee | PEMC | Riverine | 100 | IV |
| Kaminski Hill | 37N 42E 33 | Spring Coulee | PABF | Riverine | 100 | III |
| Kaminski Hill | 37N 42E 34 | Spring Coulee | PABF | Riverine | 20 | III |
| Glentana West | 36N 42E 29 | Spring Coulee | PEMC | Slope | 80 | III |
| Glentana East | 35N 42E 5 | Spring Coulee | PEMC | Riverine | 50 | IV |
| Glentana East | 35N 42E 8 | Spring Coulee | PSSY | Slope | 20 | IV |
| Glentana East | 35N 42E 29 | Unk. Trib. | PEMC | Riverine | 40 | IV |
| Larslan NW | 34N 42E 8 | Trib. Snow Coulee | PEMC | Riverine | 10 | IV |
| Baylor NE | 34N 41E 24 | Trib. Snow Coulee | PEMC | Riverine | 30 | IV |
| Baylor NE | 34N 41E 14 | Trib. Snow Coulee | PEMC | Riverine | 10 | IV |
| Glentana East | 36N 42E 29 | Spring Coulee | PEMY | Riverine | 10 | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| Glentana East | 36N 42E 28 | Trib. Spring Coulee | PEMC | Riverine | 10 | IV |
| Richland | 36N 43E 34 | Spring Coulee | PEMC | Riverine | 10 | IV |
| Richland | 35N 43E 2 | W.F. Poplar River | PEM/R2UBF | Riverine | 100 | II |
| Richland | 36N 43E 36 | W.F. Poplar River | PEM/R2UBF | Riverine | 80 | II |
| Richland | 36N 43E 22 | Trib. Poplar River | PEMC | Riverine | 20 | IV |
| Brockway Spring | 36N 43E 3 | Unk. Trib. | PEMC/PEMfh | Riverine | 20 | IV |
| Brockway Spring | 37N 43E 4 | Coal Ck. | PEMB | Riverine | 30 | III |
| Horseshoe Basin | 35N 44E 3 | Trib. West Fork | PEMC | Riverine | 30 | IV |
| Horseshoe Basin | 35N 44E 1 | Trib. West Fork | PEMC | Riverine | 50 | IV |
| Peerless | 35N 45E 9 | Police Ck. | PEMC | Riverine | 20 | IV |
| Peerless | 35N 45E 2 | Olson Coulee | PEMC | Riverine | 50 | IV |
| Killenbeck Reservoir | 35N 46E 1 | Trib. Butte Ck. | PEMC | Riverine | 30 | IV |
| Four Buttes | 35N 47E 6 | Trib. Poplar River | PEMC | Riverine | 20 | IV |
| Four Buttes | 35N 47E 11 | Trib. Poplar River | PEMC | Riverine | 20 | IV |
| Scobey | 35N 48E 7 | Poplar River | PEMA | Riverine | 30 | II |
| Scobey | 35N 48E 7 | Poplar River | R2UBF | Riverine | 30 | II |
| Scobey – | 36N 48E 32 | Poplar River | R2UBF | Riverine | 30 | II |
| Scobey | 35N 48E 3 | ___ | PFOA | Depressional | 200 | III |
| Scobey | 36N 48E 34 | ___ | PEMA | Depressional | 200 | III |
| Scobey | 36N 48E 27 | E. Fork Poplar River | RU2BF/PEMF | Riverine | 50 | II |
| Scobey NW | 36N 48E 3 | E. Fork Poplar River | RU2BF | Riverine | 100 | II |
| Scobey NW | 37N 48E 29 | ___ | PEMA | Depressional | 100 | III |
| Scobey NW | 37N 48E 21 | Outlet Ck. | PEMC | Riverine | 100 | ___ |
| Scobey NW | 37N 48E 21 | Unk. Trib. | PEMA | Riverine | 50 | IV |
| Scobey NW | 37N 48E 22 | Reservoir | PFOA/PEMA | Depressional | 100 | III |
| Simmerell Slough | 37N 48E 26 | Unk. Trib. | PEMA | Depressional | 200 | III |
| Simmerell Slough | 37N 48E 25 | Unk. Trib. | PEMC | Riverine | 50 | IV |
| Scobey NE | 36N 48E 2 | ___ | PEMA | Depressional | 300 | III |
| Four Buttes NE | 37N 47E 30 | Unk. Trib. | PEMA | Riverine | 30 | IV |
| Four Buttes NE | 37N 46E 25 | Silver Lake | L2USC | Depressional | 300 | II |
| Four Buttes NE | 37N 46E 36 | Unk. Trib. | PEMA | Riverine | 20 | IV |
| Opheim | 36N 40E 25 | Snow Coulee | PSSB | Slope | 500 | III |
| West Fork NE | 34N 45E 10 | W. Fork Cottonwood | PSSC | Riverine | 20 | III |
| West Fork NE | 34N 45E 16 | W. Fork Cottonwood | PEMC | Riverine | 40 | III |
| West Fork | 34N 45E 30 | Trib. Cottonwood | PEMC | Riverine | 30 | IV |
| West Fork | 34N 44E 35 | Hell Creek | PEMC | Riverine | 600 | III |
| Peerless | 35N 45E 11 | Olson Coulee | PEMC | Riverine | 30 | IV |
| Scobey | 36N 48E 32 | Trib. Poplar River | PSSA | Riverine | 30 | IV |
| Four Buttes | 36N 47E 32 | Trib. Poplar River | PEMA | Riverine | 30 | IV |
| Four Buttes | 36N 47E 19 | Audet Coulee | PEMC | Riverine | 10 | IV |
| Killenbeck Res. | 36N 46E 23 | Butte Creek | PABF/PEMC | Riverine | 300 | III |
| Horseshoe Basin | 35N 44E 1 | ___ | PEMC | Slope | 100 | IV |
| Cabarett Coulee | 34N 48E 3 | Poplar River | R2UBF | Riverine | 80 | II |
| Cabarett Coulee | 34N 48E 9 | Unk. Trib. | PEMA | Riverine | 100 | IV |
| Cabarett Coulee | 34N 48E 16 | Negro Coulee | PABF/PEMC | Riverine | 20 | IV |
| Cabarett Coulee | 34N 48E 21 | Unk. Trib. | PEMC | Riverine | 40 | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| Cabarett Coulee | 34N 48E 4 | Cabarett Coulee | PEMA | Riverine | 10 | IV |
| Line Coulee | 34N 49E 21 | Big Coulee | PEMC | Riverine | 30 | IV |
| Line Coulee | 34N 49E 22 | Line Coulee | PEMCH | Riverine | 40 | IV |
| Pleasant Prairie NW | 34N 50E 19 | Line Coulee | PEMC | Riverine | 20 | IV |
| Pleasant Prairie NW | 34N 50E 21 | ___ | PEMC | Slope | 80 | IV |
| Pleasant Prairie NW | 34N 50E 27 | Unk. Trib. | PFOA | Riverine | 70 | III |
| Pleasant Prairie NW | 33N 50E 3 | Smoke Creek | PABF/PEMA | Riverine | 500 | II |
| Madoc | 35N 49E 9 | ___ | PEMA | Depressional | 10 | IV |
| Madoc | 35N 49E 12 | ___ | PEMA | Depressional | 10 | IV |
| Madoc | 35N 50E 8 | ___ | PABF | Depressional | 100 | III |
| Flaxville | 35N 50E 17 | Eagle Creek | PEMA | Depressional | 60 | IV |
| Flaxville | 35N 50E 29 | ___ | PEMA | Depressional | 80 | IV |
| Flaxville | 35N 50E 32 | ___ | PEMA | Depressional | 100 | IV |
| Flaxville | 35N 50E 32 | S. Fork Whitetail | PABF | Riverine | 30 | III |
| Whitetail | 36N 50E 10 | Whitetail Ck. | PEMC | Riverine | 40 | III |
| Goodale Coulee | 37N 50E 23 | Trib. Whitetail | PEMC | Riverine | 20 | IV |
| Flaxville | 35N 50E 10 | ___ | PEMC | Slope | 20 | IV |
| Flaxville | 35N 50E 11 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Navajo | 35N 50E 12 | M. Fork Eagle Ck. | PEMC | Riverine | 100 | IV |
| Redstone | 35N 51E 1 | ___ | PEMC | Riverine | 10 | IV |
| Redstone | 36N 52E 32 | Muddy Creek | PEMC | Riverine | 100 | II |
| Redstone | 36N 52E 32 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Redstone | 36N 52E 16 | Muddy Ck. | PEMC | Riverine | 40 | II |
| Daleview | 36N 52E 16 | Muddy Ck. | PEMC | Riverine | 30 | II |
| Daleview | 36N 52E 9 | Muddy Ck. | PEMC | Riverine | 20 | II |
| Daleview | 37N 51E 36 | Muddy Ck. | PEMC | Riverine | 20 | II |
| Daleview | 37N 51E 22 | Beaver Ck. | PEMC | Riverine | 30 | III |
| Redstone | 35N 52E 10 | Muddy Ck. | PEMC | Riverine | 50 | II |
| Archer | 35N 53E 18 | Unk. Trib. | PEMA | Riverine | 50 | IV |
| Archer | 35N 53E 17 | ___ | PEMC | Slope | 600 | III |
| Archer | 35N 53E 10 | Unk. Trib. | PEMA | Riverine | 10 | IV |
| Archer | 35N 53E 15 | Unk. Trib. | PEMA | Riverine | 10 | IV |
| Plentywood SW | 35N 54E 16 | McCoy Ck. | PEMA | Riverine | 50 | IV |
| Plentywood | 35N 54E 14 | ___ | PEMA | Depressional | 800 | III |
| Plentywood | 35N 55E 31 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Plentywood | 36N 55E 30 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Plentywood | 36N 54E 13 | Unk. Trib. | PEMC | Riverine | 40 | IV |
| Raymond | 37N 54E 23 | ___ | PEMC | Depressional | 300 | III |
| Raymond | 37N 54E 10 | ___ | PEMC | Depressional | 200 | IV |
| Outlook | 37N 53E 18 | ___ | PEMC | Depressional | 800 | III |
| Outlook | 37N 53E 31 | Plentywood Ck. | PEMC | Riverine | 30 | III |
| Archer | 36N 53E 22 | Plentywood Ck. | PEMC | Riverine | 30 | III |
| Plentywood | 35N 55E 19 | Muddy Ck. | PABF | Riverine | 600 | III |
| Kisler Butte | 34N 54E 9 | Unk. Trib. | PEMC | Riverine | 70 | IV |
| Kisler Butte | 34N 54E 17 | Unk. Trib. | PEMC | Riverine | 40 | IV |
| Plentywood | 35N 55E 10 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Plentywood | 35N 55E 3 | Boxelder Ck. | PEMC | Riverine | 20 | III |
| Dooley SW | 36N 55E 35 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Dooley SW | 36N 55E 25 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Dooley SW | 36N 56E 19 | ___ | PEMC | Depressional | 50 | IV |
| Dooley SW | 36N 58E 18 | ___ | PEMC | Depressional | 200 | III |
| Dooley SW | 36N 56E 17 | ___ | PEMC | Depressional | 20 | III |
| Dooley SW | 36N 56E 16 | ___ | PEMC | Depressional | 200 | III |
| Dooley | 36N 56E 9 | ___ | PEMC | Depressional | 50 | III |
| Dooley | 37N 56E 19 | ___ | PEMC | Depressional | 70 | III |
| Dooley | 37N 56E 19 | ___ | PEMC | Depressional | 50 | III |
| Antelope | 34N 55E 2 | Ator Ck. | PEMC | Riverine | 50 | III |
| Antelope | 34N 56E 30 | Antelope Ck. | PEMC | Riverine | 100 | III |
| Shippe Canyon | 34N 55E 27 | Muddy Ck. | PAB/PEM | Riverine | 4- | II |
| Antelope | 33N 56E 7 | ___ | PEMA | Depressional | 30 | III |
| Reserve | 33N 56E 18 | Unk. Trib. | PEMC | Riverine | 20 | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| Reserve | 33N 56E 18 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Reserve | 32N 56E 17 | | PEMA | Depressional | 50 | IV |
| Antelope | 34N 56E 17 | Unk. Trib. | PSSC | Riverine | 20 | IV |
| Reserve NE | 34N 56E 10 | Antelope Ck. | PEMC | Riverine | 20 | III |
| Coal Ridge | 34N 57E 11 | | PEMF | Depressional | 400 | II |
| Coal Ridge | 34N 58E 18 | | PEMC | Depressional | 300 | III |
| Reserve SE | 33N 56E 13 | | PEMC | Depressional | 25 | II |
| Reserve SE | 33N 56E 13 | | PEMA | Depressional | 500 | II |
| Dagmar | 33N 58E 17 | | PEMA | Depressional | 50 | II |
| Dagmar | 33N 58E 16 | | PEMA | Depressional | 100 | II |
| Dagmar | 33N 58E 16 | Unk. Trib. | PEMC | Riverine | 50 | II |
| Reserve SE | 32N 57E 27 | Medicine Lake | PEM/ABF | Depressional | 1000 | I |
| Dagmar | 32N 58E 22 | Cottonwood Ck. | PEMC | Riverine | 100 | II |
| Dagmar | 32N 58E 14 | | PEMA | Depressional | 30 | II |
| Dagmar | 32N 58E 11 | | PEMA | Depressional | 100 | II |
| Dagmar | 32N 58E 11 | | PEMA | Depressional | 100 | II |
| Brush Lake | 32N 59E 6 | | PEMA | Depressional | 600 | II |
| Brush Lake | 33N 58E 35 | | PEMA | Depressional | 150 | II |
| Brush Lake | 33N 58E 36 | | PEMA | Depressional | 300 | II |
| Brush Lake | 33N 58E 36 | | PEMA | Depressional | 300 | II |
| Brush Lake | 33N 58E 36 | | PEMA | Depressional | 200 | II |
| Dominek Lake | 34N 58E 36 | | PEMC | Depressional | 300 | II |
| Dominek Lake | 34N 58E 36 | | PEMC | Depressional | 200 | II |
| Coal Ridge | 34N 58E 19 | | PEMA | Depressional | 75 | II |
| Tadpole Lake | 35N 57E 3 | Lake Ck. | PEMC | Riverine | 30 | III |
| Tadpole Lake | 36N 57E 36 | | PEMC | Depressional | 30 | III |
| Tadpole Lake | 36N 58E 29 | | PEMC | Depressional | 100 | II |
| Westby South | 36N 58E 22 | | PEMC | Depressional | 100 | II |
| Westby South | 36N 58E 23 | | PEMC | Depressional | 600 | II |
| Tadpole Lake | 36N 58E 19 | | PEMA | Depressional | 50 | II |
| Tadpole Lake | 36N 57E 13 | | PEMA | Depressional | 50 | II |
| Long Tree Lake | 36N 58E 7 | | PEMC | Depressional | 70 | II |
| Westby North | 36N 58E 10 | | PEMC | Depressional | 50 | II |
| Westby North | 36N 58E 16 | | PEMC | Depressional | 50 | II |
| Westby South | 36N 58E 16 | | PEMC | Depressional | 50 | II |
| Westby North | 37N 58E 31 | | PEMC | Depressional | 200 | II |
| Lone Tree Lake | 37N 58E 31 | | PEMC | Depressional | 100 | II |
| Lone Tree Lake | 37N 58E 31 | | PEMC | Depressional | 50 | II |
| Lone Tree Lake | 37N 57E 25 | | PEMC | Depressional | 400 | II |
| Lone Tree Lake | 37N 58E 19 | | PEMC | Depressional | 50 | II |
| Lone Tree Lake | 37N 58E 7 | | PEMC | Depressional | 100 | II |
| Westby North | 37N 58E 9 | | PEMC | Depressional | 50 | II |
| Westby North | 37N 58E 9 | | PEMC | Depressional | 70 | II |
| Westby South | 36N 58E 25 | | PEMC | Depressional | 50 | I |
| Westby South | 36N 58E 36 | | PEMC | Depressional | 600 | II |
| Westby South | 36N 58E 34 | | PEMC | Depressional | 50 | II |
| Tadpole Lake | 35N 58E 9 | | PEMC | Depressional | 50 | II |
| Tadpole Lake | 36N 58E 17 | | PEMC | Depressional | 300 | II |
| Park Lake | 36N 57E 4 | | PEMC | Depressional | 100 | II |
| Park Lake | 36N 57E 5 | | PEMC | Depressional | 20 | II |
| Park Lake | 37N 56E 36 | | PEMC | Depressional | 20 | II |
| Capeneys Lake | 32N 57E 28 | Medicine Lake | L2UBGH | Depressional | 500 | I |
| Capenys Lake | 32N 57E 33 | Medicine Lake | PEM | Depressional | 200 | I |
| Capenys Lake | 32N 57E 32 | Medicine Lake | PEMC | Depressional | 100 | I |
| Capenys Lake | 31N 57E 5 | Medicine Lake | L2UBGH | Depressional | 100 | I |
| Medicine Lake | 32N 56E 31 | Medicine Lake | L2UBGH | Depressional | 500 | I |
| Medicine Lake | 30N 56E 6 | McCabe Ck. | PEMC | Riverine | 30 | IV |
| Medicine Lake | 30N 56E 7 | Lost Ck. | PEMC | Riverine | 20 | IV |
| Medicine Lake | 30N 56E 18 | | PABF | Depressional | 200 | III |
| Froid | 30N 56E 30 | Sheep Ck. | PEMC | Riverine | 30 | III |
| Froid | 30N 56E 31 | Unk. Trib. | PEMC | Riverine | 100 | III |
| McCabe West | 29N 56E 19 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Culbertson | 29N 56E 19 | Unk. Trib. | PEMA | Riverine | 20 | IV |
| Culbertson | 28N 55E 25 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| Culbertson | 28N 55E 21 | Unk. Trib. | PEMC | Riverine | 80 | IV |

| | | | | | | |
|---|---|---|---|---|---|---|
| Fort Kipp | 28N 55E 17 | Scott Creek | PEMC | Riverine | 30 | III |
| Fort Kipp | 28N 55E 8 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Rocky Point | 29N 54E 11 | Unk. Trib. | PEMC | Riverine | 10 | IV |
| Johnson Lake | 30N 55E 32 | Sand Creek | PEMC | Riverine | 50 | IV |
| Johnson Lake | 30N 55E 32 | Unk. Trib. | PEMC | Riverine | 200 | III |
| Johnson Lake | 30N 55E 24 | Sheep Ck. | PEMC | Riverine | 30 | III |
| McCabe West | 28N 56E 28 | Clover Ck. | PEMC | Riverine | 200 | III |
| McCabe West | 28N 56E 26 | Clover Ck. | PFO | Riverine | 200 | III |
| McCabe West | 28N 56E 25 | Unk. Trib. | PEMC | Riverine | 20 | IV |
| McCabe East | 28N 57E 33 | Clover Ck. | PEMC | Riverine | 20 | III |
| McCabe East | 28N 57E 34 | Clover Ck. | PEMC | Riverine | 10 | III |
| McCabe East | 28N 57E 25 | Unk. Trib. | PEMA | Riverine | 30 | III |
| McCabe East | 28N 58E 20 | | PEMA | Depressional | 200 | III |
| Bainville | 28N 58E 20 | | PEMA | Depressional | 200 | III |
| Bainville | 28N 58E 28 | | PEMA | Depressional | 200 | III |
| Bainville | 28N 58E 34 | Shotgun Ck. | PEMA | Riverine | 200 | III |
| Bainville SW | 27N 58E 1 | Unk. Trib. | PEMA | Riverine | 30 | IV |
| Red Bank Ck. | 28N 59E 29 | Red Bank Ck. | PEMA | Riverine | 40 | IV |
| Red Bank Ck. | 28N 59E 33 | Little Muddy Ck. | PEMC | Riverine | 500 | III |
| Red Bank Creek | 28N 59E 35 | Unk. Trib. | PEMC | Riverine | 50 | IV |
| Froid | 30N 56E 15 | Lost Ck. | PEMC | Riverine | 30 | III |
| Froid | 30N 56E 22 | Lost Ck. | PEMC | Riverine | 30 | III |
| Froid SE | 30N 57E 19 | Duck Lake | PFO/PEMC | Depressional | 500 | II |
| Froid SE | 30N 57E 23 | Unk. Trib. | PEMC | Riverine | 50 | IV |
| Froid SE | 30N 57E 23 | | PEMA | Depressional | 100 | IV |
| Froid SE | 30N 57E 9 | | PEMC | Depressional | 100 | IV |
| Capneys Lake | 31N 57E 34 | | PEMC | Depressional | 80 | IV |
| Sunnyhill School | 30N 58E 6 | | PEMC | Riverine | 100 | IV |
| Sunnyhill School | 31N 58E 32 | Sand Creek | PEMC | Riverine | 70 | III |
| Sunnyhill School | 31N 58E 20 | Sand Creek | PEMC | Riverine | 300 | III |
| Kaminski Hill | 37N 42E 9 | Unk. Trib. | PSS | Slope | 30 | IV |
| Kaminski Hill | 37N 42E 10 | | PEMC | Depressional | 600 | III |
| Cabarett Coulee | 34N 48E 28 | Cabarett Coulee | PEMC/PSS | Riverine | 10 | IV |
| Plentywood | 35N 54E 14 | | PEMA | Depressional | 800 | III |
| Plentywood | 35N 54E 13 | | PEMA | Depressional | 800 | III |

# APPENDIX D

# FISH PRESENT IN WATERS OF THE PROJECT AREA

| | | | |
|---|---|---|---|
| Goldeye | *Hiodan alosoides* | Common | Year-round resident |
| Iowa darter | *Etheostoma exile* | Uncommon | Year-round resident |
| Lake chub | *Couesius plumbeus* | Uncommon | Year-round resident |
| Longnose dace | *Rhinicthys cataractae* | Common | Year-round resident |
| Longnose sucker | *Catostamus catostomus* | Common to uncommon | Year-round resident |
| Northern pike | *Esox lucius* | Common | Resident and spawning |
| Northern redbelly dace | *Phoxinus eos* | Common to rare | Year-round resident |
| Paddlefish | *Polyodon spathula* | Uncommon | Primarily migration |
| Rainbow trout | *Oncorhynchus mykiss* | Uncommon to rare | Spawning elsewhere |
| River carpsucker | *Carpiodes carpio* | Common to uncommon | Year-round resident |
| Sauger | *Stizostedion canadense* | Common to rare | Year-round resident and migration |
| Shorthead redhorse | *Moxostama macrolepidotum* | Common to uncommon | Year-round resident |
| Shovelnose sturgeon | *Scaphirhynchus platorynchus* | Uncommon | Year-round resident |
| Smallmouth bass | *Micropterus dolomieu* | Uncommon | Year-round resident |
| Smallmouth buffalo | *Ictiobus bubalus* | Uncommon | Year-round resident |
| Spottail shiner | *Notropis hudsonius* | Uncommon | Year-round resident |
| Stonecat | *Noturus flavus* | Rare to common | Year-round resident |
| Walleye | *Stizostedion vitreum* | Uncommon to common | Resident and spawning |
| Western silvery/plains minnow | *Hybognathus argyritis* | Rare to uncommon | Year-round resident |
| White sucker | *Catostomus commersoni* | Rare to abundant | Resident and spawning |
| Yellow perch | *Perca flavescens* | Rare to uncommon | Resident and spawning |

Source: Montana River Information System, 2001

## Fish Species Present in the Poplar River and the East, West and Middle Forks

| Common name | Scientific name | Abundance | Stream Use |
|---|---|---|---|
| Black bullhead | *Ameiurus melas* | Rare | Unknown |
| Brassy minnow | *Hybognathus hankinsoni* | Rare | Year-round resident |
| Brook stickleback | *Culaea inconstans* | Uncommon | Year-round resident |
| Burbot | *Lota lota* | Present | Year-round resident |
| Channel catfish | *Ictalurus punctatus* | Present | Unknown |
| Common carp | *Cyprinus carpio* | Common | Year-round resident |
| Emerald shiner | *Notropis atherinoides* | Common | Year-round resident |
| Fathead minnow | *Pimephales promelas* | Common | Year-round resident |
| Flathead chub | *Platygobio gracilis* | Common to abundant | Year-round resident |
| Freshwater drum | *Aplodinotus grunniens* | Present | Year-round resident |
| Goldeye | *Hiodon alosoides* | Common | Year-round resident |
| Iowa darter | *Ethestoma exile* | Rare | Year-round resident |
| Lake chub | *Couesius plumbeus* | Abundant | Year-round resident |
| Longnose dace | *Rhinicthys cataractae* | Common | Year-round resident |
| Northern pike | *Esox lucius* | Common | Year-round resident |
| Northern redbelly dace | *Phoxinus eos* | Rare to abundant | Year-round resident |
| Paddlefish | *Polyodon spathula* | Present | Unknown |
| River carpsucker | *Carpiodes carpio* | Present to uncommon | Year-round resident |
| Sauger | *Stizostedion canadense* | Rare | Resident and spawning |
| Shorthead redhorse | *Moxostoma macrolepidotum* | Present to common | Year-round resident |
| Shovelnose sturgeon | *Scaphirhynchus platorynchus* | Present | Unknown |
| Smallmouth bass | *Micropterus dolumieu* | Present to rare | Year-round resident |
| Stonecat | *Noturus flavus* | Rare | Year-round resident |
| Sturgeon chub | *Macrhybopsis gelida* | Rare to uncommon | Year-round resident |
| Walleye | *Stizostedian vitreum* | Rare to Common | Resident and spawning |
| Western silvery/plains minnow | *Hybognathus argyritis* | Rare to common | Year-round resident |
| White crappie | *Pomoxis annularis* | Rare | Year-round resident |
| White sucker | *Catostomus commersoni* | Abundant to common | Year-round resident |
| Yellow perch | *Perca flavescens* | Rare to uncommon | Year-round resident |

Source: Montana Rivers Information System

## Fish Species Present in the Lower Missouri River

| Common name | Scientific name | Abundance | Stream Use |
|---|---|---|---|
| Bigmouth buffalo | *Ictiobus cyprinellus* | Common | Year-round resident |
| Black bullhead | *Ameiurus melas* | Rare | Year-round resident |
| Blue sucker | *Cycleptus elongates* | Common | Year-round resident |
| Brassy minnow | *Hybognathus hankinsoni* | Rare | Year-round resident |
| Brook stickleback | *Culaea inconstans* | Rare | Year-round resident |
| Burbot | *Lota lota* | Common | Year-round resident |
| Channel catfish | *Ictalurus punctatus* | Common | Year-round resident |
| Ciscoe | *Coregonus artedi* | Rare to common | Year-round resident |
| Common carp | *Cyprinus carpio* | Common to abundant | Year-round resident |
| Emerald shiner | *Notropis atherinoides* | Uncommon to common | Year-round resident |
| Fathead minnow | *Pimephales promelas* | Rare to uncommon | Year-round resident |
| Flathead chub | *Platygobio gracilis* | Common to abundant | Year-round resident |
| Freshwater drum | *Aplodinotus grunniens* | Rare to common | Year-round resident |
| Goldeye | *Hiodon alosoides* | Abundant | Year-round resident |
| Iowa darter | *Etheostoma exile* | Rare | Year-round resident |
| Lake chub | *Couesius plumbeus* | Uncommon | Year-round resident |
| Longnose dace | *Rhinichthys cataractae* | Rare to uncommon | Year-round resident |
| Longnose sucker | *Catostomus catostomus* | Abundant to common | Year-round resident |
| Northern pike | *Esox lucius* | Common | Resident and spawning |
| Northern redbelly dace | *Phoxinus eos* | Rare | Year-round resident |
| Paddlefish | *Polyodon spathula* | Common | Resident and spawning |
| Pallid sturgeon | *Scaphirhynchus albus* | Rare | Year-round resident |
| Rainbow smelt | *Osmerus mordax* | Uncommon | Unknown |
| Rainbow trout | *Oncorhynchus mykiss* | Rare to common | Spawning elsewhere |
| River carpsucker | *Carpiodes carpio* | Abundant to common | Year-round resident |
| Sauger | *Stizostedion canadense* | Abundant to common | Year-round resident |
| Shorthead redhorse | *Moxostoma macrolepidotum* | Common | Year-round resident |
| Shortnose gar | *Lepisosteus platostomus* | Rare | Unknown |
| Shovelnose sturgeon | *Scaphirhynchus platorynchus* | Abundant | Year-round resident |
| Sicklefin chub | *Macrhybopsis meeki* | Uncommon | Year-round resident . |
| Smallmouth buffalo | *Ictiobus bubalus* | Common | Year-round resident |
| Spottail shiner | *Notropis hudsonius* | Uncommon to common | Year-round resident |
| Stonecat | *Noturus flavus* | Rare to common | Year-round resident |
| Sturgeon chub | *Macrhybopsis gelida* | Rare to uncommon | Year-round resident |
| Walleye | *Stizostedion vitreum* | Common | Resident and spawning |
| Western silvery/plains minnow | *Hybognathus argyritis* | Rare to uncommon | Year-round resident |
| White crappie | *Pomoxis annularis* | Rare | Year-round resident |
| White sucker | *Catostomus commersoni* | Abundant to common | Year-round resident |
| Yellow perch | *Perca flavescens* | Rare to uncommon | Year-round resident |

Source: Montana River Information System, 2001.

## Fish Species Present in the Milk River

| Common name | Scientific name | Abundance | Stream Use |
|---|---|---|---|
| Bigmouth buffalo | *Ictiobus cyprinellus* | Abundant to Uncommon | Year-round resident |
| Black crappie | *Pomoxis nigromoculatus* | Rare to Uncommon | Year-round resident |
| Blue sucker | *Cycleptus elongates* | Rare | Year-round resident |
| Brassy minnow | *Hybognathus hankinsoni* | Rare | Year-round resident |
| Brook stickleback | *Culaea inconstans* | Rare | Year-round resident |
| Burbot | *Lota lota* | Rare to Common | Year-round resident |
| Channel catfish | *Ictalurus punctatus* | Uncommon | Year-round resident |
| Common carp | *Cyprinus carpio* | Common | Year-round resident |
| Emerald shiner | *Notropis atherinoides* | Uncommon to common | Year-round resident |
| Fathead minnow | *Pimephales promelas* | Rare to uncommon | Year-round resident |
| Flathead chub | *Platygobio gracilis* | Common to uncommon | Year-round resident |
| Freshwater drum | *Aplodinotus grunniens* | Uncommon | Year-round resident |

# APPENDIX E

# SCOPING LETTER

# Request for Public Comment
# Proposed Fort Peck Reservation Rural Water System Project

January 10, 2001

This announcement is to invite interested parties to submit written or oral comments about the Fort Peck Reservation Rural Water System (FPRRWS), proposed by the Fort Peck Assiniboine and Sioux Tribes and the Dry Prairie Rural Water Authority (see attached map). The project area includes the Fort Peck Reservation and areas outside of the Reservation (Dry Prairie region) in Roosevelt, Sheridan, Daniels, and Valley counties. Your comments are being requested as part of the public involvement process for the National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA). Comments should be sent by February 29, 2000 to either address at the end of this announcement.

Congress authorized and provided planning appropriations for the proposed project on October 27, 2000 through the Fort Peck Reservation Rural Water System Act of 2000 (PL 106-382, 114 Stat. 1451). The proposed FPRRWS would provide safe and adequate drinking water to the Fort Peck Reservation and Dry Prairie region of northeastern Montana. The project would also provide industrial, commercial, and livestock water to the two service areas (see attached map of proposed project). Funding for Fiscal Year 2001, which was appropriated by means of other federal legislation, includes monies for completion of environmental studies.

The Fort Peck Tribes and the Dry Prairie Rural Water Authority, through cooperative agreements with the United States Department of the Interior, Bureau of Reclamation, are conducting planning, design and environmental analysis for the project. The Bureau of Reclamation and the Montana Department of Natural Resources and Conservation are the lead agencies responsible for overseeing compliance with NEPA and MEPA, respectively.

Funding levels authorized by Congress for construction of the proposed project totals $175 million, with $124 million for the Fort Peck Reservation service area and $51 million for the Dry Prairie service area. In addition to federal funding for the project, the State of Montana and an association of local water users will each will provide an additional $8 million dollars for the Dry Prairie area for a total proposed budget of $191 million dollars. Construction is proposed to begin in 2002 and extend through 2011 for completion.

Major components of the proposed FPRRWS:

- Installation of pumps and intake structures to divert water from the Missouri River (average water withdrawal 5.5 million gallons per day) near Poplar, Montana.

- Construction of a water treatment plant at Poplar, Montana.
- Installation of about 3100 miles of buried water transmission pipeline, ranging from 2-24 inches in diameter.
- Construction of 20 primary pumping stations.
- Construction of overhead powerlines to pumping stations if necessary.

Interested parties are welcome to provide written comments to identify environmental concerns and suggest reasonable alternatives. Please send written comments to either the Fort Peck Tribes or the Dry Prairie Rural Water Authority at the following addresses.

Mr. Tom Escarcega
Water Resources Department
Fort Peck Tribes
PO Box 1027
Poplar, MT

e-mail 2tefpmni@nemontel.net

Mr. Clint Jacobs
Dry Prairie Rural Water Athority
PO Box 517
Culbertson, MT 59218

e-mail dprw@nemontel.net

Public scoping meeting will also be held in Glasgow, Poplar, Culbertson, Scobey and Plentywood in January and February 2001 at dates to be announced on the radio and in local newspapers.

A draft environmental assessment (EA) will be available for public review after June 2001. The Bureau of Reclamation and the Montana Department of Natural Resources and Conservation will use the draft EA and comments to the draft EA to determine if the project would have significant impacts on the human and natural environment. If no significant impacts are identified, the Bureau of Reclamation and State of Montana will issue a final EA and a Finding of No Significant Impact (FONSI), as is required under NEPA.

# APPENDIX F

# FISH AND WILDLIFE COORDINATION ACT PLANNING ASSISTANCE LETTER

| Surname |
| --- |
| |
| |
| |

ECOLOGICAL SERVICES
100 NORTH PARK, SUITE 320
HELENA MT 59601

ES-61130-Billings
M.04 - BR Informal

July 7, 1995

**MEMORANDUM**

**To:** Area Manager, Montana Area Office, U.S. Bureau of Reclamation, Billings, MT

**From:** Field Supervisor, Montana Field Office, Ecological Services, Helena, MT

**Subject:** Fish and Wildlife Planning Aid Letter for Fort Peck Reservation Rural Water System

This Planning Aid Letter provides the U. S. Fish and Wildlife Service's (Service) assessment of the effects of the development of a proposed water development system for the Fort Peck Reservation. This system was authorized by Congress in Public Law 103-126. The Fort Peck Tribes have asked the U. S. Bureau of Reclamation (Bureau) to prepare a planning report that will be used by the Tribes to seek funds and operate the system.

These comments have been prepared under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661 et seq.) and the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et. seq.). Submission of the planning aid letter is in accordance with the Interagency Transfer of Funds Agreement for Fiscal Year 1995, No. 5-AA-60-05400, Modification No. 007.

DESCRIPTION OF THE PROJECT

The Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation are pursuing development of a domestic rural water system on the Fort Peck Reservation. The Bureau of Reclamation is providing technical assistance in determining the feasibility of the proposal and providing engineering assistance in developing a project design. The project initially would supply domestic water to approximately 96% (12,940 people) of the Reservation's population. All small communities and outlining populations and all rural residents below Township 29 North as well as the communities of Wolf Point and Poplar could be served. The system would also supply a large portion of the Reservation's livestock needs. The system design would be sized to accommodate the needs of the entire Reservation and potential customers off the Reservation. Two service options and five potential sizing alternatives have been considered. The preferred alternative encompasses a Bed-Mounted Infiltration Gallery in the Missouri River, a water treatment plant and a pipeline distribution system.

## DESCRIPTION OF THE PROJECT AREA

The environment of the northern Great Plains is harsh. Precipitation levels are low with temperature extremes and strong winds being the norm. European settlement resulted in significant alteration in vegetation native to the area. Large acreage of native grasslands and riparian vegetation along steam valleys have been converted to cropland. Annual crops include wheat, barley and oats. Grasses of the upland prairies include green needle grass, western wheatgrass, rough fescue, little bluestem prairie sandreed and needle-and-thread. Blue grama, sandberg bluegrass, prairie junegrass, cheatgrass and Kentucky bluegrass, clubmoss, fringed sagewort, cactus and weeds can occur on many sites depending on the intensity of domestic livestock grazing. Natural and man made wetland sites occur in some areas. Wetlands occur primarily along streams, poorly drained upland sites and near the prairie-pothole region along the eastern portion of the project area. Woody draws occur along ephemeral creeks and other areas where water is present. Bottomlands along the Missouri River contain woodlands, mixed prairie grasslands, shrub/scrub land, marsh and prairie. Cottonwood forest has been extensively cleared. Over bank flooding which is required for cottonwood regeneration has been eliminated as a result of construction and operation of Fort Peck Dam. Some cottonwood regeneration is still occurring as a result of channel migration (DNRC 1994).

## EVALUATION METHODOLOGY

A field reconnaissance of the project area was completed by an interagency team on May 1-3, 1995. Team representatives included Rick Blaskovich and Kurt Groeple, Bureau of Reclamation; Karl Fourstar and Henry Headdress, Fort Peck Tribes; and Steve Oddan and Dennis Christopherson, U.S. Fish and Wildlife Service. Based on this field evaluation and the type of project being proposed the Service does not believe that a detailed habitat evaluation study is warranted.

## FISH AND WILDLIFE RESOURCES WITHOUT THE PROJECT

### Aquatic Resources

Aquatic resources in the project area include those of the Missouri River and its tributaries. A major tributary to the Missouri River is the Poplar River. Creeks, palustrine wetlands, and man-made lakes and ponds are also distributed across the Reservation.

The Missouri River has been classified by the Montana Department of Fish, Wildlife and Parks as a Value Class I stream. A Value Class I stream is considered to have highest value fishery resources. The Poplar River within the project area is a Value Class III stream with substantial fishery resources (MDFWP 1980). The Missouri River includes habitat of the endangered pallid sturgeon and four other species that are listed by the Montana Natural Heritage Program as species of special concern. These include the paddlefish, shortnose gar, blue sucker and sicklefin chub. Sturgeon chub, northern redbelly-finescale dace and pearl dace are other species of special concern that occur on Fort Peck Reservation. Common gamefish in the Missouri River

below Fort Peck Dam and in the Poplar River include walleye, sauger, shovelnose sturgeon, northern pike and smallmouth bass (Brown 1971).

Stock water ponds or dams and other man-made wetlands occur in pastures, in conjunction with road side ditches and in association with water courses throughout the Reservation. These wetlands provide migration habitat as well as production habitat for waterfowl.

Terrestrial Resources

Uplands in the project area are primarily short grass prairie and cropland. Grasslands are grazed by domestic livestock. Riparian vegetation occurs along the Missouri River and Poplar rivers. Riparian habitats along water courses are very important for many species of resident and migrant wildlife.

Common game animals and furbearers include white-tailed and mule deer, pronghorn antelope, ring-necked pheasant, sharp-tailed grouse, muskrat, beaver, and mink. Migratory birds including waterfowl are common.

Endangered Species

Seven Federally listed threatened or endangered species occur or may occur within the proposed project area.

The bald eagle (Haliaeetus leucocephalus) is listed as endangered in Montana. This species occurs as a migrant and probably winters in the project area. No known nest territories have been established on the Missouri River below Fort Peck Dam or along the Poplar River. A wintering population of bald eagles occurs immediately below Fort Peck Dam.

The black-footed ferret (Mustela nigripes) is listed as endangered in Montana. Black-tailed prairie dog colonies or complexes of colonies of over 80 acres are considered potential habitat for this species. Prairie dog colonies provide the primary food source for black-footed ferrets. The burrow systems provide shelter and are used by black-footed ferrets to rear young.

The endangered peregrine falcon (Falco peregrinus) occurs in the project area only as a migrant.

Piping plover (Charadrius melodus) a threatened species nests in limited numbers on unvegetated sandbars on the Missouri River. Most nesting observations have been on sandbars located between Wolf Point and Poplar (Figure 1). Nests are initiated between May 15 and June 30. Chicks have generally fledged by July 30. Piping plovers began their migration from the area during August with most birds having left by the end of August. Nesting habitat for this species and least terns has been adversely affected by construction and operation of the Fort Peck Dam. Formation of new nesting islands is limited as a result of the sediment free discharges from the dam. Many nests are inundated and avian and mammalian predators destroy nests.

The Missouri River between Wolf Point and Poplar is an extremely important area for breeding least terns (Sterna antillarum) in Montana (Figure 1).

this is for page numbering purposes. please insert the color figure sheet

Figure 1. Fort Peck Indian Reservation Alternative B - III.

Least terns are colony nesters and select the same type of nesting habitat as piping plovers. Nests of both species often occur on the same unvegetated islands. Least tern nests are generally initiated from June 1-30 with some renesting occurring in early July. Least tern chicks fledge by mid-August when migration commences. River discharges appear to be the most important factor affecting breeding of least terns.

The whooping crane (Grus americana) is listed as endangered and occurs in Montana only as a occasional spring or fall migrant. The birds use cropland and pasture, wet meadow, shallow marshes, shallow portions of rivers, lakes, reservoirs, and stock ponds, and alkaline basins for both feeding and loafing.

The endangered pallid sturgeon (Scaphirhynchus albus) remains one of the rarest fish in the Missouri River. The fish requires turbid, free-flowing, riverine habitat with rock or sandy substrate. Little is known about reproduction or spawning activities of pallid sturgeon. No spawning beds have been located and larval pallid sturgeon have not be recorded (USFWS 1993).

Many Federal agencies also have policies to protect candidate species from further population declines. Although candidate species have no legal status and are accorded no protection under the Act, they are included here to alert your agency of potential proposals or listings. Candidate species that may occur within the project area include:

| Common Name | Scientific Name | Category | Expected Occurrence |
|---|---|---|---|
| Spotted bat | Euderma maculatum | 2 | S, central MT - shrub-steppe, conifer parkland |
| North American lynx | Felis lynx canadensis | 2 | W, central MT - montane forest |
| Small-footed myotis | Myotis ciliolabrum | 2 | Statewide - rocky areas in various habitats; caves |
| Long-eared myotis | Myotis evotis | 2 | Statewide - various habitats; caves, mines |
| Long-legged myotis | Myotis volans | 2 | Statewide - riparian forest |
| Pale Townsend's big-eared bat | Plecotus townsendii pallescens | 2 | Statewide - shrub-steppe, forest edge, caves |
| Swift fox | Vulpes velox | 2 | E of divide - prairie, grasslands |

| | | | |
|---|---|---|---|
| Northern goshawk | Accipiter gentilis | 2 | Statewide - conifer forest |
| Baird's sparrow | Ammodramus bairdii | 2 | E of divide - shortgrass prairie |
| Western burrowing owl | Athene cunicularia hypugea | 2 | E of divide - prairie, grasslands |
| Ferruginous hawk | Buteo regalis | 2 | E MT - prairie, grasslands |
| Mountain plover | Charadrius montanus | 1 | E MT - shortgrass prairie |
| Black tern | Chlidonias niger | 2 | Statewide - lakes, marshes |
| Trumpeter swan | Cygnus buccinator | 2 | SW MT- Centennial Valley lakes |
| White-faced ibis | Plegadis chihi | 2 | E MT - marshes |
| Eastern short-horned lizard | Phrynosoma douglassii brevirostra | 2 | E MT - sandy soils, dunes |
| Northern sagebrush lizard | Sceloporus graciosus graciosus | 2 | SE MT - rocky/brush |
| Spotted frog | Rana pretiosa | 2 | W, central MT - streams, lakes, coniferous forest |
| Blue sucker | Cycleptus elongatus | 2 | Missouri River |
| Western silvery minnow | Hybognathus argyritis | 2 | Missouri, Yellowstone River drainage |
| Plains minnow | Hybognathus placitus | 2 | Missouri, Yellowstone River drainage |
| Sturgeon chub | Macrhybopsis (=Hybopsis) gelida | 1 | Lower Yellowstone, Powder, Missouri Rivers |
| Sicklefin chub | Macrhybopsis (=Hybopsis) meeki | 1 | Missouri River |

| | | | |
|---|---|---|---|
| Flathead chub | Platygobio (=Hybopsis) gracilis | 2 | Missouri, Yellowstone River drainage |
| Paddlefish | Polyodon spathula | 2 | E, central MT - Missouri, Yellowstone Rivers |
| Berry's mountainsnail | Orechelix strigosa berryi | 2 | Big Snowy Mtns; conifer forest |
| Tawny crescent butterfly | Phyciodes batesi | 2 | E MT - moist meadows, riparian areas |
| Regal fritillary butterfly | Speyeria idalia | 2 | E MT - extirpated? |
| **PLANTS** | | | |
| Barr's milkvetch | Astragalus barrii | 3C | SE MT - buttes, hilltops |
| None | Carex microptera var. crassinervia | 3B | W Central MT - mountains |
| Long-styled thistle | Cirsium longistylum | 2 | Central MT- meadows |
| Persistent sepal yellowcress | Rorippa calycina | 2 | Central and E MT - riverbanks |

Category Codes:

1 - Taxa for which the Service has on file sufficient information on biological vulnerability and threats to support proposals to list as threatened or endangered.

2 - Taxa for which the Service has information indicating that proposing to list is possibly appropriate but for which conclusive data on biological vulnerability and threat currently are not available to support a proposal to list.

3 - No longer considered candidates for listing:

3A - Taxa for which the Service has persuasive evidence of extinction.

3B - Names that, on the basis of current taxonomic understanding (usually as represented in published revisions and monographs), do not represent distinct taxa meeting the Act's definition of species.

3C - Taxa that have proven to be more abundant or widespread than previously believed and/or those that are not subject to any identifiable threat.

PT - Taxa already proposed to be listed as threatened.

PE - Taxa already proposed to be listed as endangered.

## FISH AND WILDLIFE RESOURCES WITH THE PROJECT

### Aquatic Resources

Aquatic resources within the project area could be affected by installation and operation of the intake structure, withdrawal of water for project purposes and construction of the distribution system.

A Bed-Mounted Infiltration Gallery withdrawal system will be used to supply water for the project. The infiltration gallery will be installed in the Missouri River at a undetermined site. Preferred sites are areas where the river channel is stable and bedload movement is minimal. Water will be supplied through approximately 260 feet of screens buried about 3-5 feet below the stream channel bottom. Screens would be covered with gravel. Maximum intake velocity at the interface of the infiltration gallery and stream bottom would be 0.05 ft/sec. (Johnson per. comm.) Installation of the infiltration gallery would require use of coffer dams in the Missouri River.

Use of the infiltration gallery for water withdrawal will minimize impacts to fishery resources in the Missouri River. Intake velocities of 0.05 ft/sec. will prevent impingement of larval fish. Short term increases in sediment would be anticipated during construction and removal of coffer dams. Use of sheet piling for coffer dams would minimize instream sedimentation.

The Bureau of Reclamation has estimated that approximately 3,000,000 gallons of water per day will be required for the project. Minimum releases from Fort Peck Dam are 3000 cfs. and maximum powerplant capacity is 15,000 cfs. A water depletion of 4.65 cfs (3,000,000 gal/day) would not adversely affect fishery resources in the Missouri River during periods when minimum discharges are being released from Fort Peck Dam.

Sizing of the main line of the distribution system will be dependent upon location of the water withdrawal system. The main east/west distribution line will require a pipe approximately 42 inches in diameter. The pipe would be buried seven feet deep and would require excavation of a six foot wide trench. Lateral lines will be reduced in size and will vary from 26 inches down to 12 inch lines serving stock water facilities. These lines will also be buried approximately seven feet to prevent freezing. Construction of the pipeline system to convey water could have negative effects where the lines cross drainage, streams or wetlands. Impacts to stream courses can be avoided by boring under the stream bed when installing the line. This method would be the preferred construction method for crossing the Poplar River. Fishery impacts can be reduced on other streams by avoiding the periods of high runoff which corresponds to periods of spawning and fish movement. These periods generally occur during spring and early summer. Roadside ditches will be used for pipeline corridors. The May field review of the proposed pipeline corridors identified 30 wetlands associated with roadside ditches (Figure 1). Most of these wetlands were created by road construction where the road bed serves as a dam or dike or the roadside ditch holds water on permanent or semi-permanent basis. A formal jurisdictional wetland determination to determine whether section 404 of the Clean Water Act was applicable to these wetlands was not conducted. Consensus of field review team was that most if

not all wetlands delineated would be classified as jurisdictional wetlands. The Bureau of Reclamation has indicated that location of the pipeline route as well as specific location of the pipeline within the selected route is flexible. As a result wetland impacts can be minimized by avoiding wetlands in many cases. Impacts to wetlands that cannot be avoided can be reduced by constructing the pipeline when seasonal wetlands are low or dry. Care to avoid filling or draining wetland basins during reclamation of disturbed areas following pipeline construction will be required. A wetlands field review team composed of representatives from the Fort Peck Tribes, Bureau of Reclamation and U.S. Fish and Wildlife Service should be convened prior to each construction season. This team should conduct a field reconnaissance of proposed pipeline alignments and make recommendations regarding alignments and/or site specific recommendations regarding restoration of wetlands that will be impacted by construction activities. If wetlands are impacted by project facilities, Corps of Engineers section 404 permits may be required. In that event, depending on permit type and other factors, the U.S. Fish and Wildlife Service may be required to review permit applications and will recommend any protection or mitigation measures to the Corps of Engineers as may appear reasonable and prudent based on the information available at that time.

Terrestrial Resources

The use of road right-of-ways for the pipeline corridor will minimize impacts to terrestrial resources and is the preferred location for pipelines. An exception would occur where the pipeline could be rerouted in grasslands or cropland to avoid wetlands. The limited impacts to grassland or woody vegetation occurring along roadside rights-of-ways will be of short duration and can be further reduced with appropriate reclamation of disturbed areas.

The water treatment plant will be constructed near the point of water withdrawal and is estimated to require approximately 2 to 2.5 acres of land (Johnson per. comm.). Because the treatment plant will be located near the systems intake facility there is a high probability that the treatment plant could be located in riparian habitat. This habitat type is very important to a wide range of wildlife species. Avoidance of riparian habitat when selecting the treatment site is preferred in order to minimize terrestrial impacts. Powerlines required for the treatment plant should be constructed according to raptor protection guidelines by Olendorf et al. (1981).

Endangered Species

Construction of the infiltration gallery has the potential to impact habitats utilized by pallid sturgeon, least terns and piping plovers. The Recovery Plan for pallid sturgeon recommends that new point-source water intakes serving industry, irrigation, and public water supply be screened with a 1/4-inch (6.35 mm) mesh and have an intake velocity of less than 0.50 ft/sec, or be placed at water depths greater than 15 feet to protect against entrainment or impingement of pallid sturgeon larvae and fingerlings (USFWS 1993). The proposed infiltration gallery would meet these requirements.

Impacts to piping plover and least tern nesting on sandbar habitat in the Missouri River can be eliminated by timing construction of the infiltration gallery to avoid the critical nesting period of May 15 to July 30 or by selecting an infiltration gallery site that is located at least 1/2 mile away from potential nesting habitat. Location of nesting habitat for least terns and piping plovers is dynamic, as a result the Service should be contacted to obtain the latest information regarding nesting locations prior to making a final site selection or starting construction of the facility.

Raptor proofing of new or upgraded powerlines installed for the project will prevent electrocutions of bald eagles and other large raptors.

Mitigation

Mitigation for a project includes avoiding impacts, then minimizing impacts and finally offsetting impacts that were unavoidable by compensatory mitigation. Analysis of potential impacts associated with the Fort Peck Rural Water System indicate that most all potential impacts to fish and wildlife resources can be avoided or minimized.

Avoidance and Minimization

The following measures should be implemented to avoid or minimize impacts to fish and wildlife resources:

(1) The proposed Bed-Mounted Infiltration Gallery should be used for the surface water intake for the project. Use of road ditches as pipeline corridors will minimize impacts to habitats of importance to wildlife.

(2) The infiltration gallery should be located at least 1/2 mile away from habitat being used by nesting least terns or piping plovers. Impacts to these birds can also be avoided by timing construction of the intake facility to avoid the critical May 15 - July 30 nesting season.

(3) Pipelines should be installed by boring under the Poplar River and other streams if possible. When trenching is used to cross streams the pipeline route should be perpendicular to flow and accomplished in a manner to reduce soil erosion and disturb as little vegetation as is possible.

(4) Impacts to wetlands should be avoided through route selection and by going around wetlands occurring in designated routes. Many wetlands could be avoided by crossing under road to the adjoining roadside ditch. If wetlands cannot be avoided construction should be scheduled when the wetland is dry. Wetlands that will be disturbed should be restored to pre-disturbance contours and elevations during reclamation of the disturbed areas.

(5) A wetlands field review team composed of representatives from the Fort Peck Tribes, Bureau of Reclamation and U.S. Fish and Wildlife Service should be convened prior to each construction season. This team should conduct a field reconnaissance of proposed pipeline alignments and make

recommendations regarding alignments and/or site specific recommendations regarding restoration of wetlands that will be impacted by construction activities.

(6) Woody vegetation (brush, trees, etc.) encountered along the pipeline route should be avoided by altering the alignment of the pipeline route.

(7) Reclamation of vegetation disturbed during pipeline construction should occur immediately following construction and be done with seed mixtures indigenous to the area.

(8) The water treatment facility, associated parking lots and roads should be located to avoid riparian vegetation to the extent possible. Impacts to nesting birds resulting from disturbance of grassland and riparian vegetation that cannot be avoided can be minimized by scheduling construction activities that result in vegetation disturbance prior to May 1 and after July 1.

(9) All powerlines constructed or upgraded should be raptor proofed following guidelines in "Suggested Practices for Raptor Protection on Power Lines; Raptor Research Report No. 4.

Enhancement Opportunities

A number of projects for wetland and waterfowl enhancement for lands on the Fort Peck Reservation have been developed under auspices of the North American Wetland Conservation Act (NAWCA). These projects are currently included in the Northeastern Montana Wetland Project which is being discussed with the Tribal Government. Projects developed under the NAWCA are required to have a non-Federal match in dollars or in-kind services. Competition for NAWCA funding is great. Development of these wetland enhancement proposals as enhancement projects in conjunction with the Fort Peck Reservation Rural Water System should be considered. The following includes a summary of these projects:

Frazer Lake

BACKGROUND

Frazer Lake, originally called Little Porcupine Reservoir, is located approximately 0.5 miles southeast of Frazer, Montana. The lake was originally constructed (1924) as an irrigation impoundment within the little Porcupine irrigation unit. The original design included a diversion dam on Little Porcupine Creek and a feeder canal.

The lake has a 3,549 acre-feet capacity, and covers 382 surface acres when full. In addition, there are 218 surrounding acres that are owned by Fort Peck Tribes.

The original intent was to store water from Little Porcupine Creek in the lake for later irrigation use. Prolonged drought conditions in the Little

Porcupine Creek drainage caused the Irrigation Unit to abandon this part of their project. In 1964, the irrigation needs of most of the Unit were supplied through the construction of a pump station and canal that supplies water from the Missouri River. Currently, the Irrigation Unit has a need for only 240 acre-feet of additional storage to fully address their irrigation needs.

Frazer Lake (and the surrounding Tribal land) is well known for its waterfowl production capabilities and migration use. When water is available the area is exceptional. Waterfowl production is high and migratory stopovers are well documented. In addition, in earlier years, when the lake was routinely full, it provided a very good fishery to the local community.

GOAL

The goal of this project is three-fold. First, improve the production capability and reliability of Frazer Lake and the surrounding uplands for migratory waterfowl and shorebirds. Second, provide an acceptable recreational fishery for the enjoyment of the local community. Third, provide a reliable source for the 240 acre-feet need for the Little Porcupine Irrigation Unit.

PROPOSAL

All of the previously mentioned goals require the establishment of a reliable water source for Frazer Lake. Unfortunately, Little Porcupine Creek is not an acceptable solution. The most realistic alternative is the Little Porcupine Relift Pump and canal that currently provides Missouri River water to the Irrigation Unit. The Tribes currently control 500,000 acre-feet of water in this system.

This proposal would involve the installation of a pump and pipe system to bring the needed water from the existing canal to Frazer Lake (roughly .75 miles). The water would be provided to the lake in the fall, just before the relift pump and canal are shut down. Each fall the lake would be full before freeze-up.

In the spring, waterfowl breeding and production needs would be provided by the presence of extensive shallow water wetlands around the perimeter of the lake. Reliable water throughout the summer will provide very valuable brood rearing and fall migration staging areas.

To provide a sustainable warm-cool water fishery, the Frazer Lake will have to provide depths of at least 10 feet over at least 15% of the surface of the lake (roughly 57 acres). Minor dredging would be done on the lake to remove 70 years of siltation in select locations that will assure them minimum acreage and provide accessible fishing opportunities throughout the summer. The location of the dredging can be manipulated to minimize human disturbance to nesting and young waterfowl. In addition, dredged material will be used to construct waterfowl and shorebird nesting islands.

Irrigation draws on the lake will be restricted to 240 acre-feet annually. To minimize the impact of this draw on waterfowl and the fishery, the Irrigation Unit will assure that full lake levels are maintained until June 15. This will allow bass/bluegill spawning to take place undisturbed. This will be accomplished by either avoiding irrigation use until after June 15 or additional spring pumping to offset irrigation draws.

EXPECTED RESULT

This project is expected to fulfill the three goals of this project. Waterfowl production will be greatly enhanced. The lake will provide a limited recreational fishery, readily accessible to the local community of Frazer. Finally, the Little Porcupine Irrigation Unit will be provided the capability to realize the full benefit of their irrigation project.

COST ESTIMATE - $225,000

Partners for Wildlife

BACKGROUND

Montana Partners for Wildlife is administered by the U.S. Fish and Wildlife Service. The program provides financial and technical assistance to private landowners for enhancing wildlife habitat. Partners for wildlife is strictly voluntary. The program relies on flexibility, creativity, and a cooperative approach to develop wildlife habitat on private lands.

Partners for Wildlife will assist landowners on a variety of projects. In eastern Montana, projects may include stockdam construction, pothole restoration or range improvements. In western Montana, the program focuses on stream habitats. The landowner's economic objectives are always considered before completing a project. For instance, a range improvement project or reservoir construction is designed to benefit livestock and wildlife.

Partnerships are the cornerstone of the program. Partnerships initially develop between a Partners staff member and the landowner. They then expand into other areas. Many projects have multiple funding partners. Funds are leveraged between the landowner, agencies, and conservation organizations (eg. Ducks Unlimited).

Landowners can be apprehensive about working cooperatively with the government. Concerns are reduced by using a simple 3-page contract called a Wildlife Extension Agreement. Farming and grazing are normally allowed. The landowner controls access. Hunting is allowed at the landowner's discretion.

The program is successful because each project is "tailored" to fit the needs of a landowner and wildlife. This approach has worked well. To date, over 500 Montana landowners, primarily farmers and ranchers, have participated in the Partners for Wildlife Program.

PROPOSAL

PROPOSAL

Constructing stock ponds or assisting in range management will improve livestock grazing conditions and enhance wildlife habitat. Improved grassland conditions are important to livestock, antelope, deer, and grouse. Waterfowl will be attracted to the new water areas. The rancher has improved range conditions and Ft. Peck Reservation has abundant wildlife populations.

The Montana Partners for Wildlife Program is seeking approval from the Ft. Peck Tribal Board to explore opportunities for habitat improvement projects within the Ft. Peck Reservation. The program will work cooperatively with the tribal board and tribal members to improve wildlife habitat on private lands within the reservation. All activities and projects will be coordinated with the appropriate tribal office.

Specifically, the proposal would provide funding to support a Tribal employee for the purpose of promoting Partners for Wildlife activities within the boundaries of the Reservation. Training and technical support for this employee would come from U.S. Fish and Wildlife Service and Montana Department of Fish, Wildlife and Parks employees currently involved in Partners for Wildlife activities in northeastern Montana. This proposal includes funding to pay salary of employee and to carry out the habitat opportunities identified for a two year period.

COST ESTIMATE FOR TWO YEARS - $150,000

CONCLUSION

Potential impacts associated with this project will be negligible if the avoidance and minimization recommendations included in this report are incorporated into the project. Fish and wildlife benefits would accrue with development of the enhancement features.

REFERENCES

Brown, C.J.D. 1971. Fishes of Montana. 207 pp.

Department of Natural Resources and Conservation. 1994. Lower Missouri river basin draft environmental impact statement for water reservations below Fort Peck Dam. 196 pp.

Montana Department of Fish, Wildlife and Parks, and U.S. Fish and Wildlife Service. 1980 Stream evaluation map state of Montana.

Olendorf, R.R., A.D. Miller, and R.N. Lehman. 1981 Suggested practices for raptor protection on powerlines. Raptor Research Report No. 4. 110 pp.

U.S. Fish and Wildlife Service. 1993. Recovery plan for pallid sturgeon (*Scaphirhynchus albus*). 55 pp.

DMC/jf

** SURNAME SLIP **
FOR CORRESPONDENCE REQUIRING
FIELD SUPERVISOR SIGNATURE

AUTHOR: Dennis Christopherson
FILE #: M.04 - BR Informal
ftpeck.m&i
REVIEWER(S):
Dale Harms reviewed 7/6/95

ASST. FIELD SUPERVISOR: _____

SPECIAL INSTRUCTIONS: please mail Monday
with figure 1 insert if possible

_____
_____

COPIES: _____
_____
_____
[Attach this slip to Field Office file copy]_

# APPENDIX G

# FORT PECK TRIBES
# WETLAND MITIGATION POLICY

# Wetland Conservation Strategy and Mitigation Policy for The Fort Peck Tribes

**July 1998**

## I. INTRODUCTION

Conservation Strategy Purpose

The purpose of the Wetland Conservation Strategy for the Fort Peck Tribes is to establish a framework to guide and facilitate the protection, conservation, and management of wetlands for present and future generations in partnership with private landowners, federal, tribal, state and local governments, economic interests and conservation organizations.

Wetlands - Vital Resources

For many years, wetlands in around the nation were viewed as wastelands. With support and encouragement from the federal government, ranchers and farmers converted their marshes and wetlands to what were then deemed more "productive uses"-- pastures and croplands. No definitive assessment of the numbers of acres of wetlands converted to these and other uses has ever been completed. One commonly cited study (Dahl 1990) however, estimates that 27 percent of Montana's original wetlands have been lost since colonial times.

Because wetlands comprise less than 1 percent of the total surface area of Montana, this loss estimate appears significant. The Montana Department of Health and Environmental Science biennial report (1982) to the U.S. Environmental Protection Agency stated, "Precious little is known about Montana wetlands except that they are disappearing." Despite laws enacted to protect them, Montana wetlands continue to be lost and degraded each year. In addition, considerable pressure is exerted on wetland functions and values which adds to the decline and degradation of Montana's wetland base.

The intrinsic value of wetlands were not recognized until their loss started to reveal problems. For example, sportsmen gradually began to notice a decline in the numbers of fish and wildlife. Flooding along rivers and shorelines increased over historical levels. Some of the nation's most valuable waterfowl production areas are the prairie pothole region of the northern Great Plains, including wetlands of northeastern Montana's Fort Peck Tribes. The Fort Peck Tribes have begun to recognize that wildlife habitat, water pollution control, groundwater recharge and flood control are direct benefits of wetland preservation.

Strategy Purpose and Guiding Principles

The purpose of the Fort Peck Tribes Wetlands Conservation Strategy (Strategy) is to establish a framework to guide and facilitate the protection, conservation, and management of wetlands on Tribal lands for present and future generations in partnership with private landowners, federal, state and local governments, economic interests and conservation organizations. The Strategy purpose is based on the recognition that healthy wetlands are important to present and future generations of Tribal members and that maintaining fully functioning wetlands should be a conservation priority.

The Wetland Conservation Strategy has been designed to be a comprehensive, flexible guide for use by wetland managers, landowners, private industry and others to foster responsible wetland stewardship and wetland conservation. The Strategy also recommends specific wetland conservation activities and sets priorities for implementation. The Strategy was developed with the following guiding principles:

- Wetlands provide important functions and benefits to Tribal members and should be conserved for future generations.

- Wetland conservation efforts should be practical, flexible, and creative, while allowing for economic growth and development when possible.

- Wetlands education and public outreach should be conducted in a clear, understandable and balanced manner to provide information and increase public awareness of wetlands issues.

- The best scientific information available should be used to promote understanding of wetlands and to improve wetland decision making.

- Cooperative voluntary conservation efforts should be promoted to conserve, protect, restore, enhance, and manage privately owned wetlands.

- Existing successful wetlands protection and conservation programs should be supported, and partnerships with private conservation efforts should be promoted rather than development of new governmental programs.

- Where unavoidable impacts to wetlands occur, wetland replacement and/or restoration should be promoted within the watershed and monitored to ensure that lost wetland functions and values are recouped. Existing native wetlands should be given conservation priority over restored, enhanced or created wetlands because native wetlands have higher high biological diversity than restored, enhanced or created wetlands.

- Although accurate information on the amount of wetlands lost in Montana is unavailable, it is recognized that significant losses have occurred (Dahl 1990). Wetland conservation efforts should be promoted to prevent additional losses, and wetland restoration and creation should be promoted to compensate for losses.

# II. BACKGROUND

What is a Wetland?

A farmer's definition of a wetland, just after his tractor has sunk to its axles in the muck, obviously would be different from that of a school teacher presenting the values of wetlands to a class. Each wetland is unique. Wetlands include: marshes, swamps, potholes, wet meadows, fens, impoundments, ponds, and sloughs. Wetlands can be present in many settings including: riparian areas, flood plains, and upland forested areas. Some wetlands hold fresh water, some are saline, and others are created by underground water that is very close to the surface. Wetlands can be vegetated or non-vegetated. They are wet long enough and often enough to have unique natural functions, though they can be dry part of the year.

Because wetlands occupy the transitional areas between open waters and dry uplands, wetlands could be considered "fringe environments. "As described by R.L. Smith (1980), wetlands are a halfway world between terrestrial and deepwater aquatic ecosystems and exhibit some of the characteristics of each. Basically wetlands form part of a continuous gradient between uplands and open water. They may be bordered by both wetter areas (deepwater habitats) and by drier areas (non-wetlands). As a result, in any definition the upper and the lower limits of wetlands has arbitrary boundaries. Consequently, few definitions adequately describe all wetlands. In fact, the introductory statement of Cowardian and others (1979) remains a challenge:

> There is no single, correct, indisputable, ecologically sound definition for wetlands, primarily because of the diversity of wetlands and because the demarcation between dry and wet environments lies along a continuum. Because reasons or needs for defining wetlands also vary, a great proliferation of definitions has arisen including structural attributes, functional considerations, and jurisdictional criteria.

Despite the difficulty defining wetlands, they generally have the following characteristics:

- Water on or near the surface, all or part of the year.
- Distinctive poorly drained soils that develop certain physical characteristics
  due to the presence of water (referred to as hydric soils).
- Vegetation composed of species (referred to as hydrophytes) adapted to life in wet soils.

Wetlands are identified for various legal, scientific and economic purposes, including regulation, functional assessment, ecosystem and landscape management, and human use. In general, wetland definitions have evolved from two main sources; the general public

and entities which have a regulatory responsibility relating to wetlands. In regulatory programs, wetland definitions and delineation are usually interpreted conservatively. In an ecosystem context, such as wetland habitat assessment, a broader interpretation is needed. The intent and purpose of a wetland definition is fundamental to its interpretation and application.

Federal government agencies; the U.S. Fish and Wildlife Service, Environmental Protection Agency, Corps of Engineers, USDA Natural Resources Conservation Service (previously Soil Conservation Service) have developed their own wetland definitions. This led to significant confusion between the agencies and the regulated public. The federal government recognized this situation and in response developed a universal definition and means of identifying and delineating wetlands. The definition is based upon: hydrology, soils, and vegetation.

The 1987 Wetland Delineation Manual describes the process that is used to determine whether a site meets the requirements to be defined as a wetland in accordance with federal regulation. The manual, written by COE, is used by EPA, COE, NRCS and USFWS. The 1987 Manual is used when a wetland delineation is required. If a site meets specific vegetation, soils and hydrologic criteria then it is considered a federal jurisdictional wetland. (For more detailed information see Appendix H). The 1987 manual definition of a wetland is:

> Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes bogs and similar areas.

**Montana Wetland Types**

Wetlands vary in type according to differences in local and regional hydrology, vegetation, water chemistry, soils, topography, and climate. The general wetland types in Montana are currently being defined by wetland scientists and wetland managers. Using a variety of classification systems, the following types occur in Montana.

1. Riverine - associated with flowing water of rivers and streams.
- riparian areas
- backwater sloughs
- spring-fed creeks
- wet, low-lying river margins

2. Depressional - low spots on the landscape.
- saline
- glacial potholes (intermountain and prairie)
- ephemeral ponds
- wet meadows

3. Lacustrine Fringe - associated with lakes or deepwater habitat.
- mudflat fringe
- lake, reservoir and pond margins

4. Slope - groundwater discharge areas on a topographic gradient.
- wet meadows
- subalpine/montane
- fens
- springs/seeps

5. Artificial - supported hydrologically by human-related activities.
- irrigation-supported
- transportation corridor-related
- livestock impoundments

Functions and Benefits of Tribal Wetlands

Wetlands serve highly important ecological, economic, recreational, and aesthetic functions. In Montana, wetlands mitigate flood impacts, enhance water quality, improve biological productivity, increase recharge of ground water and provide direct human benefits. These benefits are described below:

## FLOOD IMPACT MITIGATION

Wetlands reduce the volume and physical energy of water by:

**Flood Peak Reduction.** Wetlands store large volumes of water during snow melt and heavy rains, reducing storm peak runoffs and slowly releasing runoff over a longer time period. Drainage of wetlands and conversion to other land uses removes this "sponge" effect, causing rapid runoff in a short period which can intensify flooding and may result in stream channel instability.

**Shoreline Stabilization.** Wetland vegetation acts as a buffer which absorbs and distributes flood waters, slows water currents and dissipates wave energy, thereby lessening the potential for shoreline and floodplain erosion. The root systems of wetland vegetation bind the floodplain and shoreline soil to further resist erosive forces.

**Pollution control.** Wetlands provide retention for sediments and toxic substances. Suspended solids and chemical contaminants such as pesticides, petroleum and oils and heavy metals may be retained and deposited in a wetland. Deposition of sediments can ultimately lead to removal of toxins from the environment through burial or assimilation into vegetation. Microorganisms can further break down the pollutants into stable harmless components.

**Nutrient Removal and Transformation.** Wetlands act as natural water purification mechanisms. They remove silt and filter out and absorb nutrients such as nitrogen,

phosphorus and potassium through oxidation, reduction, assimilation or other biochemical processes. In some parts of the nation, wetlands are sometimes used in wastewater treatment.

**Waterfowl Habitat.** Wetlands are vital to many species of ducks, geese, shorebirds and swans for nesting, food, and cover. They use specific wetland types during different life stages such as reproduction, molting, migration, and wintering. Over 12 million ducks nest and breed annually in northern U.S. and south-western Canadian wetlands. This area, which includes Montana, the Dakotas, and similar habitats in the Canadian prairies accounts for up to 70 percent of the continent's breeding duck population. As an example, waterfowl banded along Montana's Highline have been recovered in all four flyways, including locations in Canada, Mexico, and several Central American countries.

**Wildlife Habitat.** Wetlands provide habitat for numerous species of birds, mammals, reptiles, amphibians, fish, and shellfish. Depending upon the size of the wetland, the vegetative composition, and the requirements of the specific animal, wetlands can provide some or all of a species' life requirements. For example, dense vegetation of wetlands can provide important winter cover for both mammals and birds. Over 300 migratory bird species rely on prairie wetland habitats for breeding, feeding, and resting during migration and more than 50 percent of Montana's birds require wetland habitat.

**Freshwater Fish.** Nearly all freshwater fish require shallow water provided by wetlands at some stage of their lives for spawning, shelter from extreme environmental conditions, and feeding. Many wetlands, where connected with deepwater habitats, provide ideal fish brooding and rearing habitat. In Montana, wetlands provide important habitat for trout, bass, catfish, pike, bluegill, sunfish, perch and crappie.

**Habitat for Threatened and Endangered Species.** Almost 35 percent of all rare, threatened and endangered animal species in the U.S. are either located in wetland areas or are dependent on them, although wetlands constitute only about 5 percent of the U.S. land area. Protecting habitat for these species helps the recovery process for those listed and helps ensure that additional species do not become listed. **Rare Plant Habitat.** Both of Montana's federally listed plant species occur in wetlands.

**Nutrient Cycling.** Wetlands enhance the decomposition of organic matter, incorporating nutrients back into the food chain.

**Recreational Opportunities.** Wetlands offer unspoiled, open space for the aesthetic enjoyment of nature as well as activities such as hiking, fishing, hunting, and photography. Montana residents spend countless hours reaping the recreational benefits of wetlands.

**Education Opportunities.** Wetlands provide opportunities for nature study and developing knowledge, skills and childhood memories.

**Agricultural Benefits.** Wetlands provide water and forage for livestock; some wetland areas produce excellent hay crops.

**Economic Benefits.** Housing near water bodies and wetlands is more desirable and increases property values.

**Wastewater Treatment.** A few small communities in Montana use constructed wetlands for municipal wastewater treatment.

**Property Damage Reduction from Floods.** Wetlands store large amounts of water which moderate flooding and thereby can reduce property damage.

**Recharge Wells and Aquifers.** Wetlands recharge groundwater by holding surface water long enough to allow the water to percolate into the underlying sediments and/or bedrock aquifers replenishing groundwater supplies.

**Low Flow Augmentation.** Wetlands release water to adjacent streams or water bodies during low periods of the year and during drought.

**Groundwater Discharge Buffering.** Wetlands enhance the quality of groundwater by acting as a natural biochemical water treatment system. Aquifers can be tapped for human consumption or irrigation.

# III. DEVELOPING TRIBAL WETLAND GOAL

Wetlands have recently become a controversial natural resource issue. Tribal members depend upon opportunities for economic growth, the ability to grow food for an ever-increasing world population, and the ability to do these without undue restrictions of personal freedoms. At the same time, Tribal members value the vast natural resources of their lands and the state's constitution guarantees all citizens a clean and healthful environment. Developing a goals for protecting important wetlands is an important first step for protecting tribal wetlands. A goal should promote consistency, provide a benchmark for assessing progress, increase understanding of the issue, provide an underlying purpose for all activities carried out as part of the strategy, and help transcend changes in leadership.

National Perspective

Throughout much of U.S. history, wetlands were regarded as a hindrance to development, virtual wastelands with little economic value. Since European settlement, Americans have repeatedly enacted laws and devised programs that encouraged the filling, damming, dredging or draining of wetlands for economic purposes such as farming, water supplies, construction and waterfront development.

However, government policy is changing rapidly and dramatically. Wetlands are now recognized as valuable resources that support wildlife, purify polluted waters, check the

destructive power of floods and storms, provide diverse recreational activities, and increase property values. President Carter in 1977 signed Executive Order (EO) 11990 which applies to federal agencies such as the Bureau of Land Management, Forest Service, and Bureau of Reclamation. EO 11990 specifies that lands meeting the definition of a wetland under the Clean Water Act and other federal and state laws, are subject to all applicable federal, state and local regulations. This means that when federal lands are proposed for lease, easement, right-of-way, or disposal to non-federal parties, special protective requirements for wetlands must be made part of the package.

Presidents Bush and Clinton endorsed a federal policy goal of preserving the remaining wetlands, "No Net Loss." Recognizing the need to further efforts undertaken by previous administrations, the Clinton Administration, in 1993, proposed a comprehensive package of improvements to the federal wetlands program to reflect a broad-based consensus among federal agencies. Entitled "Protecting America's Wetlands: A Fair, Flexible, and Effective Approach," this comprehensive package contained five principles for federal wetland policy. From these principles a number of initiatives were developed with the intent to significantly reform federal wetland policy, while maintaining protection of this vital natural resource. This new attitude is reflected by three decades of federal and state laws and other programs that serve to preserve and protect remaining wetlands. (Table 1).

In 1989, Congress directed the Secretary of the Interior to determine the estimated total number of wetland acres as of the 1780s and the 1980s in the areas that now comprise each state (Dahl 1990). The resulting report concluded that the land area that now comprises the lower 48 continental states originally contained about 221 million acres of wetlands more than 53 percent of which was destroyed between 1780 and 1980. In the lower United States, only an estimated 104 million acres of wetlands remained as of the 1980s. During the 20 years from the mid-1950's to the mid-1970's, wetland losses averaged 458,000 acres a year. The losses are primarily attributed to agricultural conversion and urban development. As of 1990, it was estimated that only 95 million acres remain and wetlands continue to be lost at a rate of almost one-half million acres each year. This computes to an acre of wetland lost every minute. Well over half of the U.S. wetlands that existed in colonial times have vanished forever. While some trends are very subtle, the above data on wetland loss provides a clear indication that continued loss will jeopardize a valuable national resource.

National Goal

A National wetland goal evolved during meetings of the National Wetlands Policy Forum. The Forum is a group representing all major interests in wetlands policy, including government, agriculture, industry, and environmental advocates. In November 1988, after examining the wetland issue for a year, the Forum published its final report. It recommended that:

> ...the nation establish a national wetlands protection policy to achieve no overall net loss of the nation's remaining

> wetland base, as defined by acreage and function, and to restore and create wetlands where feasible, to increase the quality and quantity of the nation's wetlands resource base.

This goal has driven the wetlands policy debate since that time. President Bush and President Clinton have endorsed the Forum's no net loss and long-term net gain goal (referred to as NNL). The National Governor's Association unanimously endorsed the NNL goal, and numerous states and several federal agencies, Tribal and local governments have formally adopted NNL goals. The broad appeal stated by the Forum and others for adopting the NNL goal is that it is a fundamentally balanced goal. The NNL goal was adopted with recognition of the urgent need to stabilize the wetland base and eventually increase the nation's wetland base to replace some of the wetlands which have been lost in the last 200 years. The NNL goal acknowledges that some wetlands will be lost due to natural events and necessary economic development. Those working with this goal have determined that NNL can be achieved by avoiding and minimizing wetlands losses where possible, and where losses are unavoidable, replacing lost wetlands through wetland restoration, creation, or enhancement.

Montana's Wetlands - Status and Trends

Montanans' uses of wetlands are similar to those revealed in national trends over the past 100 years. For many years, wetlands in Montana were viewed as wastelands. With support and encouragement from the federal government, ranchers and farmers converted their marshes and
wetlands to what were then deemed more "productive uses"-- pastures and croplands. No definitive assessment of the numbers of acres of wetlands converted to these and other uses has ever been completed. One commonly cited study (Dahl 1990), however, estimates that 27 percent of the state's original wetlands have been lost since colonial times. Because wetlands comprise less than 1 percent of the total surface area of Montana, this loss estimate appears significant.

Today, some agricultural producers marvel that wetland policy now aims to reverse the trend to convert wetlands for production and instead, protect, conserve and even restore areas previously deemed to be of little value. What explains this shift? Advances in scientific understanding of the many ecological functions that wetlands provide and changing social values emphasizing environmental protection, are two major forces that have prompted a redirection in government policies toward wetland conservation, protection and restoration.

It is now known that wetland loss and deterioration can be physical, chemical or biological.
The major concern in Montana is physical loss of wetlands (MDHES 1982, 1988, 1992). Most Montana losses were due to conversion of wetlands to croplands, particularly in the prairie pothole region (USGS 1996). Additional losses of Montana's wetland base have been due to construction of highways, railroads, dams, large reservoirs and irrigation systems and urban expansion. Soil erosion and siltation, urbanization, recreational

development, mining, logging, oil and gas production, and intensive grazing also have contributed to wetland loss in Montana (Hansen et al. 1988, MDFWP 1992, Windell et al. 1986).

Diminishing quality of remaining wetlands is also a concern. Fertilizers, pesticides, sediments, and salts from farms and ranches, brine from oil-field activities, and saline seeps induced by agricultural practices adversely affect the quality of water in some Montana wetlands (MDFWP 1992, Reiten 1992, Miller and Bergantino 1983). Cumulative losses are a significant concern to the overall function and distribution of wetlands in the state. To a farmer planting additional acreages, a local planning board, landowner, or Realtor planning or reviewing housing developments, or a construction firm building a highway interchange, the loss of a wetland or two in exchange for the benefits of development seems like a reasonable tradeoff. However, when these decisions are multiplied many times over and hundreds of wetlands are altered or lost, one at a time, the cumulative impact of wetland losses becomes significant.

Despite these trends in wetland losses and declines, a few positive steps are being taken. The national rate of wetland loss has slowed since protective legislation and educational programs were implemented in the mid-1980s (Dahl et al. 1991). Swampbuster provisions in the 1985 and 1990 Farm Bills denied crop subsidy benefits to farm operators who converted wetlands to croplands after 1985. The new legislation, private individuals and organizations and government agencies have all contributed to the creation, restoration and protection of some wetlands in Montana. Further, the construction of irrigation systems and reservoirs for livestock watering, especially in eastern Montana, has improved waterfowl production and has contributed to the wetland base (MDFWP 1992). However, these positive steps are only a beginning. To reverse the trend of wetland loss will require a collaborative effort.

Proposed Tribal Wetland Goal

The Fort Peck Tribes have adopted the national wetland goal as the goal for their lands.

**The proposed wetland conservation goal for Fort Peck Tribal Lands is to build a wetlands conservation program to achieve no overall net loss of Montana's remaining wetland base, in terms of quantity and quality, to conserve, restore, enhance and create wetlands where feasible, and to increase Montana's wetlands resource base.**

The broad appeal of the no net loss and long term net gain goal is that it is a fundamentally balanced goal. It recognizes the urgent need to stabilize and eventually increase Montana's wetlands inventory, while acknowledging that some wetland losses are inevitable because of natural events and legitimate development needs. It recognizes that wetlands should be evaluated in terms of functions they perform in addition to acreage they occupy. It recognizes that conservation, restoration, enhancement and creation of wetlands where feasible including respecting private property rights are

reasonable management approaches to wetland conservation. And it recognizes that the long-term goal requires replacing some of the wetland losses in Montana.

The Fort Peck Tribes recognized that a comprehensive approach involving all components of wetland conservation and management is vital to the success of achieving the proposed goal. To that end, the following five objectives necessary to meet the proposed goal were identified:

1. Improving the wetlands knowledge base.
2. Encouraging voluntary conservation on private land.
3. Enhancing conservation on all Tribal lands.
4. Providing resources: information and education, technical assistance and funding.
5. Improving regulatory program effectiveness.

# IV. STRATEGY RECOMMENDATIONS TO ATTAIN TRIBAL GOAL

This Chapter describes the five objectives and specific recommendations needed to meet proposed wetland goal identified in Chapter III. Some of the recommendations are intended to improve the effectiveness of existing programs or to strengthen coordination and cooperative action. Other recommendations are for new initiatives or programs which are needed to meet the proposed goal. Carrying out these recommendations is expected to result in significant progress in conserving wetlands and achieving proposed wetland goal. The recommendations are intended to lay the foundation for long-term, sustainable and coordinated wetland conservation.

## Objective 1. Improving The Wetlands Knowledge Base.

### Objective 1A. Inventory of wetlands.

**Background**

In general, little is known about the location or nature of wetlands in Montana or on Tribal lands, what wetlands are being lost or gained and other basic questions. A sound inventory of the Tribal wetlands is vital to wise resource management for both voluntary and regulatory programs. Without an inventory, the Tribes lack the ability to track wetland losses and gains, assess how well the state's wetland goals are met, and determine the effectiveness of the Conservation Strategy.

**Recommendation #1**

**Endorse and facilitate the completion of a voluntary baseline wetland inventory, such as the non-regulatory National Wetlands Inventory for Montana.**

The Tribes do not have an inventory of wetlands. Without such a comprehensive inventory, neither managers and or regulators will be able to measure the success of wetland conservation and protection efforts. Inventories should be performed to rank individual wetlands and wetland areas in terms of conservation values.

**Recommendation #2**

**Establish and coordinate a wetlands tracking protocol to track wetland losses and gains for Tribal jurisdictions which includes a reporting requirement for approved wetland permits.**

Currently, the Tribes has no centralized wetland tracking system and does not track wetland losses and gains. As a result wetland losses and progress in meeting wetland goals are difficult to determine.

**Recommendation #3**

**Establish a Tribal Clearinghouse for wetland data collects and work with Montana Wetland Information Clearinghouse at the Montana State Library, Natural Resource Information System.**

Currently there is no centralized, accessible source for information on Montana or Fort Peck Tribes wetlands. Improved access to information is essential for increasing the awareness of wetland issues and concerns. Inventories, projects, and programs for the purpose of wetland conservation all require accurate and relevant information. Use and sharing of data are equally important to research and the collection of new data. Accurate reports on the status of Tribal wetlands are only possible with reliable access to verifiable information.

**Recommendation #4**

**Establish a wetland monitoring program.**

Wetland monitoring is needed to determine if a wetland is changing, or if wetlands that have been created, enhanced or restored are performing the way they are expected to, and to determine if management actions (such as re-vegetation, preservation) have the desired result. Effective management of wetlands is important for ensuring that the quality and quantity of wetlands are sustained and improved.

**Objective 1B. Encourage research to add to the wetlands knowledge base.**

**Background**

Sound research on wetlands provides important information on which to base wetland protection policies and programs. Such research should cover wetland functions, techniques for wetland restoration and creation to offset losses, and other related topics.

**Recommendation #5**

**Search for additional funding sources for wetland research.**

Current programs for funding wetland research include the EPA's Wetlands State Development Grants and Non-point Source Pollution Prevention Programs. Additional funding should be sought to expand wetland research in Montana.

**Recommendation #6**

**Establish a process to discuss and recommend wetland data collection, research and information priorities and needs for the Fort Peck Tribes.**

A comprehensive evaluation of research needs will help direct limited funding to the highest priorities.

**Objective 1C. Identify unique, high quality wetlands.**

**Background**

Limited information is available on exceptional wetlands in Montana or on Fort Peck Tribal Lands. Certain unique, high-quality wetlands deserve a higher level of protection because of the public benefits and ecological functions they provide. Conservation of unique high-quality wetlands should be given greater emphasis and recognition than preservation of restored, enhanced or created wetlands.

**Recommendation #7**

**Identify, determine the functions and values of, and prioritize unique exceptionally high quality wetlands for protection.**

**Recommendation #8**

**Develop a coordinated and prioritized program for wetlands conservation, protection, and acquisition using available funding programs and sources.**

A coordinated approach should help ensure that priority wetlands are identified and protected through voluntary efforts.

**Recommendation #9**

**Develop criteria for wetlands or candidate wetlands for designation as Outstanding Resource Water in accordance with Montana Nondegradation Rules (ARM 16.20.707(18)).**

Outstanding Resource Water's (ORW) includes state waters within national parks, wilderness areas and primitive areas, and can include state waters that have been identified as possessing outstanding ecological significance and been classified as ORW. Designation of wetland with outstanding ecological significance on Tribal lands could be used to protect such wetlands.

**Objective 1D. Better define "no overall net loss" and "long term net gain".**

**Background**

No overall net loss and long-term net gain can mean different things to different people. Establishing a procedure for determining and defining net loss and long term net gain of wetlands will serve to more clearly define Tribal goals and ensure that progress in attaining those goals can be measured.

**Recommendation #10**

**Develop guidance to better define "no overall net loss" and "long term net gain" of the remaining wetland base.**

This recommendation would resolve issues such as a definition of no overall net loss and long term net gain, would provide a time line and possible quantification of a net gain goal, and develop a tracking system to determine how well we're meeting the no net loss and long term net gain goal.

**Recommendation #11**

**Establish specific protocols for determining thresholds for cumulative impacts of wetlands to determine if a loss of wetland function or value has occurred.**

Wetland loss can occur by incremental degradation and deterioration to the extent that the wetland no longer function.

**Recommendation #12**
**Define the strategy in which, over the long term, loss of wetland area or functional capacity is offset by gains due to wetland restoration, enhancement, preservation, or creation.**

**Recommendation #13**
**Decide on the types and functions of wetlands that can be created or restored to compensate for loss of similar wetland types and functions and determine the geographic area where these efforts should be undertaken.**

**Recommendation #14**
**Develop an interim plan and a long-term plan indicating steps that need to be taken to achieve a net gain of wetlands on Tribal lands.**

## Objective 2. Encourage Voluntary Conservation on Private Land.

**Background**
Cooperative, voluntary, non-regulatory mechanisms are likely to provide the greatest opportunity for wetland conservation. Unlike regulatory activities such as permitting, non-regulatory actions are voluntarily initiated. Voluntary actions can include a wide range of options and can be very successful in advancing wetland conservation goals. These voluntary actions can complement and enhance the effectiveness of regulatory programs by targeting activities or types of wetlands not covered by regulatory programs. For numerous reasons, voluntary programs are an important component of an overall wetland conservation strategy and play a critical role in wetlands conservation.

**Objective 2A. Encourage voluntary measures to protect, conserve, restore, enhance and create wetlands.**
**Background**

Achieving a stable and eventually expanding wetland base requires significant effort beyond the regulatory programs. Voluntary measures can include protection and conservation of existing wetlands, the restoration and enhancement of degraded wetlands and the creation of new wetlands. The restoration of degraded wetlands and the creation of new wetlands are often associated with the mitigation requirements of regulatory programs. Beyond governmental regulatory programs however, broad nonregulatory voluntary programs often can increase or enhance the wetlands base, thereby playing an important role in a statewide strategy. Effective management of existing, restored and created wetlands also is important for ensuring that the quality and quantity of wetlands are sustained and improved over time. Private voluntary efforts are critical to help maintain and increase the wetland base and should be encouraged and supported.

**Recommendation #15**

**Identify, evaluate and promote existing voluntary, non-regulatory wetlands protection measures.**
Many voluntary non-regulatory programs to aid wetland conservation and management are already in place. Descriptions of wetland programs available from federal, state, and local governments as well as those available from private conservation organizations and corporate interests are included in Appendix E. Information materials including public service announcements, computer based information, videos and printed materials should be developed to explain and promote these programs.

**Recommendation #16**
**Work with and strengthen private efforts to voluntarily conserve wetlands including the work of individual private landowners, corporations, recreational, environmental, hunting and fishing organizations, concerned citizens, and private land conservation organizations.**
Identify and publicize voluntary wetland conservation projects both in Montana and other states to provide as examples and encourage successful partnerships and projects.

**Recommendation #17**
**Compile and evaluate information concerning existing voluntary restoration and compensatory mitigation projects to determine project successes. Use this information to encourage and direct future projects.**
Identify existing successful partnerships among landowners, nonprofit organizations, corporations or government agencies to restore degraded or destroyed wetlands and evaluate opportunities for additional partnerships.

**Objective 2B. Promote public/private, partnerships for on-the-ground wetland conservation.**
**Background**
Partnerships are critical because of the shared responsibility for wetlands conservation and management among state and federal agencies, county and city planners, non-profit conservation organizations, corporations and ultimately thousands of private landowners who make day-to-day decisions about the management and use of wetlands.

**Recommendation #18**
**Identify and invite private industries to build wetland conservation partnerships with state, federal, and local conservation groups.**
Many American companies and conservation organizations have made land available and contributed substantial resources to create and improve wetland habitats. Montana industries or conservation organizations that might be interested in partnerships should be approached.

**Objective 2C. Initiate a private lands and property rights wetland working group.**
**Background**
A majority of wetlands in Montana are on private land and private landowners are likely to identify both barriers to and practical suggestions for wetlands conservation on private land. Wetland conservation and private property rights are serious topics. Land owners,

conservation groups, and regulators could benefit from honest discussions, evaluation and research into practical balanced solutions incorporating both reasonable wetland conservation and management and protection of private property rights.

**Objective 2D. Research and develop incentives and disincentives.**

**Background**

Both incentives and disincentives can be either financial or nonfinancial. Financial incentive programs encourage wetlands protection by offering landowners a financial incentive such as lower tax rate on property preserved for wetlands. Disincentive programs discourage the destruction of wetlands by providing landowners with a financial disincentive such as loss of eligibility for government funds if a wetland is converted. Incentive and disincentive mechanisms usually are in the form of tax policies and subsidies. Incentives can be used to complement regulatory programs by targeting wetlands that are exempt from regulatory review such as small, isolated wetlands. Awards and recognition programs also serve as nonfinancial incentives, acknowledging exemplary land stewardship or conservation work.

**Recommendation #19**

**Develop a nonfinancial incentive awards program to recognize individuals, companies, or government agencies that have voluntarily protected wetlands on Fort Peck Tribal Lands.**

**Objective 2E. Promote and enhance acquisition and easement programs.**

**Background**

Both public and private entities can protect wetlands by acquiring them or placing them in conservation easements. Protection can be achieved through a purchase of all or some property rights or through techniques such as donation or leases. Acquisition can be tailored to specific needs of the landowners and acquiring organization by using complete or "fee-simple" acquisition, which involves acquiring full ownership of the land and all the rights associated with the land, or partial acquisition, which involves acquiring only some of the rights as in a conservation easement. Voluntary acquisition programs can help resolve regulatory conflicts by offering incentives, for example, to developers to protect wetland areas or acquire wetlands on potential development sites. Easements can be used to ensure the protection of a resource while the landowner retains most of all other ownership rights. Acquisition and easement programs can be quite flexible and are available at the federal, state, local and private level.

**Recommendation #20**

**Develop partnerships with land trusts to help publicize and encourage the use of such trusts in wetland conservation.**

Local land trusts are private, nonprofit organizations devoted to the preservation of locally significant natural areas and open spaces. The trust receives land from individual landowners through gifts, donations and bequests or through purchase. A voluntary board of directors runs the land trust and membership is open to the general public. Montana has at least five local land trusts.

**Recommendation #21**
**Evaluate federal, state, local and private land acquisition programs for increased wetland acquisition or easement opportunities.**

**Recommendation #22**
**Develop fact sheets on voluntary acquisition and easement programs available to private landowners.**

**Recommendation #23**
**Research and recommend opportunities to coordinate acquisition programs with other organizations and mechanisms such as tax incentives, planning and research.**

**Recommendation #24**
**Evaluate local waste water treatment programs and projects for wetland restoration and creation potential.**

**Recommendation #25**
**Make recommendations to include protection for all components of a healthy functioning wetland in conservation programs.**
For example, while land acquisition or easement may protect wetlands from physical alterations, off-site impacts such as water pollution or water availability cannot be controlled by land acquisition alone.

## Objective 3. Encourage Conservation on Private Land.

**Objective 3A. Identify opportunities for public participation.**
**Background**
Public involvement is crucial to wise resource decisions. Many actions require public involvement, but often the public is overwhelmed with the length of documents to review, unaware of the opportunity for public comment, or unaware of the potential impacts of the proposed action.

**Recommendation #26**
**Identify opportunities and actively encourage public involvement in land management decisions affecting wetlands.**
Possibilities include a wetlands newsletter or computer site which identifies public land management decisions which affect wetlands.

**Objective 3B. Use planning as a tool to encourage wetland conservation.**
**Background**
Planning should be part of all wetland conservation efforts. Comprehensive planning involves analyzing the needs of a particular area and setting goals or priorities for meeting those needs. Plans are based on the past and present situation and, most importantly, on the desired future for the planning area. Coordinated, continuous planning should lead to better-informed decision making.

Recommendation #27

**Encourage local governments to incorporate wetlands protection into public works, parks, local zoning ordinances, planning and development programs.**

Local land use plans, watershed plans, open space planning, development of green belts, floodplain management, and local comprehensive land use plans are all tools for wetland conservation.

## Objective 4. Providing Resources: information and education, technical assistance and funding.

**Objective 4A. Increase wetlands information and education to local governments, land owners, industry, the public and schools.**

**Background**

Public awareness and understanding of the importance of wetlands are critical if wetland conservation goals are to be achieved. Information materials can help people understand the functions and values of wetlands. Education, training and technical assistance can encourage citizens to conserve, protect and enhance these resources. The purpose of the Information and Education portion of the Strategy is to facilitate development and dissemination of information materials and educational programs to build capacities for informed stewardship of the Fort Peck Tribe's wetlands over the long-term.

Considerable effort has been invested in wetlands information and education in Montana. One example is the Montana Riparian Education Committee, which has produced publications, workshops and videos to advance citizen knowledge and management of riparian areas in Montana. Wonder of Wetlands (WOW) workshops for teachers have been conducted and will continue to be available through Project WET Montana. Agricultural landowners and schools and organizations have participated in local wetlands restoration and education projects. Environmental organizations have provided information and resources to encourage wetlands preservation and protection. A Catalog of Wetlands Education Resources, which lists a wealth of wetland information, is available through the Montana Watercourse or the Natural Resource Conservation Service.

In spite of the availability of these materials and programs, there continues to be a need for balanced, factual information about Montana's wetlands. Local citizens and decision makers are sometimes uninformed and uncertain about the functions and values of wetlands. Landowners, developers and others can find permitting processes bewildering and frustrating. Resource professionals and agricultural producers seek information and technical assistance about best management practices and other wetlands issues. Local decision makers need technical training to enhance their knowledge of wetlands and to advance their capacities for informed decision making regarding wetland use and management.

Information and education are positive, non-regulatory steps to realize long-term wetlands conservation goals. They can prepare citizens for informed stewardship of

wetlands. When delivered in appropriate ways to diverse adult and youth audiences, information and education may be the most enduring approach available to enhance wetlands for the long-term. Wetland information, training workshops and technical support are needed to:

- build broad public awareness of the benefits, functions and values of wetlands,
- describe and clarify wetlands permitting procedures and regulatory guidelines for specific audiences,
- inform Tribal members of the Conservation Strategy for Wetland's and what it means to them,
- describe or view activities that are allowed in wetlands,
- address public concerns and dispel misconceptions about wetlands,
- promote cooperative, voluntary wetland enhancement, restoration and stewardship, and
- advance the capacity of landowners, decision makers and resource professionals to conserve and protect local wetlands.

**Recommendation #28**

**The Fort Peck Tribes should work with the Education Work Group of the Montana Wetlands Council can help develop a coordinated wetlands information and education effort.**

Several wetlands information and education efforts are underway in Montana. A coordinated effort should include the following; compile existing wetlands education information and education opportunities; strengthen communication among groups and agencies involved in wetlands education; assess public perceptions, interest, knowledge and educational needs regarding wetland issues on the Fort Peck Tribal Lands; identify deficiencies or gaps in existing education and information and evaluate the effectiveness of existing educational information for different audiences; develop an information and education matrix which identifies audiences, lead educators, types of education, advisors, and technical support, to facilitate coordinated wetlands information and training; identify new and improved ways to disseminate information.

**Recommendation #29**

**Existing educational programs (for example MSU Extension, Montana Riparian and Wetland Association's Education Committee, Montana Watercourse, Project WET Montana) should continue to obtain, develop and distribute wetland information.**

Wetlands information and educational needs are constantly changing as a result of factors such as new legislation and demographics. A landowner's guidebook on wetland permitting procedures and regulatory guidelines should be developed. Citizens need improved access to materials that clarify which activities are allowed in wetlands and which activities are not allowed.

**Recommendation #30**

**Existing information and education programs should be encouraged to employ a variety of approaches to develop and deliver public information materials and training programs for multiple audiences statewide.**

Employ multimedia and diverse approaches for wetlands information and education such as: Public Service Announcements for television and radio; brochures; booklets; videos; newspaper articles; workshops and tours; and demonstration projects.

**Recommendation #31**
**Develop information identifying the value and functions of wetlands and importance of healthy wetlands.**

**Objective 4B. Seek Technical Assistance.**
**Background**
Wetland science is a complex field which requires training in wetland plant identification, wetland soils and geology, wetland ecology and wetland bird and wildlife biology. The knowledge that state and federal government staff has acquired in wetland science should be used and shared to further the Fort Peck's Tribe's wetland goals.

**Recommendation #32**
**When community, public or organizations express interest, state and federal agency staff should provide assistance in the form of technical documents, information, financial support (through existing grant programs), and staff expertise. Agency staff should work in partnership with local groups to tailor activities to meet local conditions and needs.**
Technical assistance and outreach encompass many options for wetlands protection at the local level. Federal and state agencies should be actively involved in promoting non-regulatory activities for wetland protection and make sure local governments and others are aware of technical and financial assistance which is available to them.

**Recommendation #33**
**Seek technical assistance to alleviate river/stream flood flow peaks by promoting spring- time flooding of wetlands and fields to retain flood waters, and thereby also enhance wetland habitat and conserve soil moisture.**

**Objective 4C. Seek wetland conservation funding from a diversity of sources.**
**Background**
The methods that local groups and the state can use to address wetland issues may be determined in large part by the funding available to implement the recommendations. In light of the tight fiscal constraint that most states face, nontraditional sources of funding are of growing importance. Money from these sources often is not specifically intended for wetland conservation.

**Recommendation #34**
**Identify and publicize existing wetland conservation funding sources.**

**Recommendation #35**
**Prioritize wetland conservation needs and target the limited funding available to address these priorities.**

## Objective 5. Improving Regulatory Program Effectiveness

**Objective 5A. Improve coordination among regulatory programs and identify, assess and correct program inefficiencies, gaps and duplication.**

**Background**

Increased coordination and evaluation of current policies and programs will lead to more effective wetland protection and conservation. Coordination and links among programs involves capitalizing on opportunities for enhanced wetland protection through a coordinated and complementary approach rather than working in isolation. Coordination helps to define conservation priorities, create better use of available finances, staff and expertise and can help minimize duplicative efforts and inconsistencies at all levels of government.

**Recommendation #36**

**Evaluate opportunities to streamline regulatory programs.**

For example, making application forms more user-friendly, shortening permit-processing time, providing helpful handbooks to guide citizens and consultants through the permitting process, installing special telephone-access service and database management systems to help applicants track the status of their permit applications, and establishing coordinated state-federal mitigation and permit-processing standards.

**Recommendation #37**

**Increase coordination and links between non-regulatory and regulatory programs.**

For example, high priority wetland sites which are identified for non-regulatory protection, restoration and enhancement actions also should receive consideration when mitigation is required under the regulatory process.

**Recommendation #38**

**Strengthen coordination and consistency of agencies with enforcement responsibilities.**

**Objective 5B. Develop a Montana wetland mitigation (see wetland mitigation policy, appendix A) and mitigation banking policy.**

**Background**

A mitigation policy would provide guidance for those involved in the development of consistent and effective recommendations to protect and conserve wetlands. Application of the policy would be intended to enable federal, state and private developers to anticipate recommendations and incorporate mitigation measures into the early stages of the planning process, thus helping to preclude unnecessary project delay, litigation, and other problems. Federal policy guidance provides for the establishment, use and operation of mitigation banks for the purpose of providing compensatory mitigation for authorized adverse impacts to wetlands and other aquatic resources and to facilitate wetland mitigation in advance of project impacts in order to offset future wetland losses. Local procedures are needed to implement banking and provide guidance to Montanans.

**Recommendation #39**
**Establish and define the required sequence of alternatives that must be considered for mitigation of wetlands impacts.**

**Recommendation #40**
**Establish guidelines and methods of selecting ecologically desirable and practicable alternatives which are consistent with sequencing and other laws and regulations.**

**Recommendation #41**
**Define methods, to be used prior to formulation of mitigation recommendations, for analyzing and evaluating impacts and elements of a mitigation proposal.**

**Recommendation #42**
**Define and establish criteria for in-kind and out-of-kind mitigation and success criteria and monitoring requirements for mitigation.**

**Recommendation #43**
**Develop local mitigation banking procedures, in cooperation with agencies and the public, to help achieve consistency and flexibility in evaluation of mitigation banking recommendations throughout the state of Montana.**

**Recommendation #44**
**Establish local conditions for banks.**
For example, allow for the use of mitigation banks only when the bank is in the same hydrologic unit as the affected site.

**Recommendation #45**
**Establish criteria to measure and monitor mitigation banking effectiveness statewide.**

**Recommendation #46**
**Develop guidelines for public review and comment in the development of the provisions of banking agreements.**

# V. ASSESSING STRATEGY SUCCESS

The Fort Peck Wetlands Conservation Strategy has identified numerous recommendations to better manage and conserve wetlands. Without adequate monitoring and feedback, not only will progress in achieving goal's be unknown, but there will be recognition of programs that are particularly effective and those that are not. An evaluation feedback loop is vital to ensuring that limited staff and financial resources are being used wisely and effectively.

This section describes the two parts of the Strategy implementation. The first concerns biennial action plans, how they will be developed, monitored and evaluated against the

recommendations outlined in this document. The second involves the actual monitoring of wetlands to ultimately measure the success of the Strategy.

**Action Plans**

The Fort Peck Tribes will develop a detailed action plan based upon the action items identified in the Strategy. The action plans should outline the specific activities that will be accomplished to
meet the objectives set forth in the Strategy. Action plans should cover a 2-year period. Information in the action plans will include:

- The action that will be undertaken;
- The agency or organization or private party bearing primary implementation responsibility;
- Cooperating agencies and organizations;
- A time line for when the action will be completed;
- Funding needs and resources; and
- An evaluation process.

# APPENDIX A.
# FORT PECK TRIBES WETLAND MITIGATION POLICY GUIDANCE

## I. PURPOSE AND SCOPE

This document addresses several priority issues involved in assessing wetland mitigation proposals. Because of the national priority given to wetlands, that is the habitat type emphasized in this guidance. However, many of the principles described herein can logically be applied to the mitigation of any habitat of concern within tribal lands.

The objective of this policy guidance is to promote consistency when evaluating mitigation recommendations, while providing flexibility to do what is ecologically appropriate. Further, this Policy provides direction to help achieve consistent and effective application in developing mitigation recommendations to protect and conserve valuable fish and wildlife resources. Application of the Policy is intended to enable governmental and private developers to anticipate Tribal recommendations and to incorporate mitigation measures into the early stages of the planning process, thus helping to preclude unnecessary project delays, litigation, and other problems.

This guidance should be used in conjunction with the Environmental Protection Agency's Section 404(b)(1) Guidelines of the Clean Water Act (40 CFR 230.10(a)) and should be consistent with the provisions and intent of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) and the Endangered Species Act (16 U.S.C. 1531 et seq.).

## II. BACKGROUND

As clarified by the Memorandum of Agreement between the Department of the Army and EPA, entitled "Mitigation Guidelines," dated February 6, 1990, compliance with 40 CFR 230.10(d) requires application of a sequence of mitigation in the following order:

A. Avoidance
B. Minimization
C. Compensation (i.e., compensatory mitigation)

Compensatory mitigation is required to offset unavoidable wetland impacts which remain after all appropriate and practicable avoidance and minimization have been applied. The Tribal Mitigation Policy, adopted herein, identifies four resource categories that indicate a recommended level of mitigation consistent with the value of the habitat in question to an evaluation species. It identifies when habitat may be irreplaceable and when mitigation of habitat "in-kind" is recommended. The general preference for onsite mitigation also is addressed.

## III. FORMS OF COMPENSATORY MITIGATION

The focus of any mitigation must be the wetland functions that have been affected, regardless of the approach chosen. Compensatory mitigation may include restoration of filled, drained, or otherwise altered wetlands; enhancement of existing wetlands; and creation of wetlands in uplands.

On Tribal lands, the general order of preference for compensatory mitigation is restoration, creation, and enhancement. Use of habitat preservation for compensation normally should be reserved for special situations. Kruczynski (1990b) believes that wetland preservation usually should not be considered for compensatory mitigation because it results in a net loss of wetland function and acreage. Kruczynski maintains that preservation is acceptable only to protect unique and valuable wetlands in danger of destruction by development, for similar reasons, preservation is generally discouraged as a form of mitigation. Preferably, it should only be used in conjunction with the other three forms of mitigation when needed to develop a habitat complex of various wetland types. Even in such cases, 1:1 credit is usually not appropriate for the preserved acreage because the values already exist, and merely preserving them makes no contribution to the Nation's goal of "no net loss" of wetlands. The objective is to offset wetland losses (see Section IV.B.). However, if opportunities exist to enhance the preserved wetlands, that option may be more desirable.

Preservation is also acceptable when a potential site constitutes important habitat for a listed threatened or endangered species. This latter use is appropriate when consistent with recovery objectives and when the project impacts do not affect listed species. If the species may be affected, appropriate consultation steps must be undertaken in accordance with the implementing regulations for section 7 of the Endangered Species Act which does not authorize "mitigation" per se.

Two or more of the following criteria should be met before deciding that preservation is an appropriate mitigation approach:

A. The proposed preservation site performs significant physical and/or biological functions, the preservation of which is very important to the ecosystem or watershed in which the wetlands are located.

B. The preservation site is relatively rare, of high value to the evaluation species, and difficult to replace.

C. The site is under imminent threat of loss or degradation due to natural phenomena or human activities that cannot or likely will not be controlled through Federal, State, or local regulatory programs, including zoning. The existence of imminent threat should be supported by substantial clear evidence of destructive natural phenomena or land use changes which have been demonstrated by local or regional land use trends.

D. Preservation will be used in conjunction with a more comprehensive mitigation package involving other mitigation efforts (i.e., creation, restoration, and enhancement), such that preservation will increase the overall value of the mitigation area and facilitate effective and efficient management of a habitat complex.

E. The impacted wetlands are of poor quality and fall under Resource Category 3 or 4 definitions of the U.S. Fish and Wildlife Service Mitigation Policy.

F. The amount of impacted habitat is relatively small.

Where habitats are protected, restored, or targeted for protection or restoration under Federal programs designed to increase the Nation's wetlands base, the Tribes will not recommend, support, or advocate the use of such lands as compensatory mitigation for habitat losses authorized under the section 10/404 wetlands regulatory permit program. This policy extends to Federal programs that protect or restore fish and wildlife habitats on private lands, and includes, but is not limited to, easement areas associated with inventory and debt restructure properties under the Food Security Act of 1985, as amended. It also includes lands protected or restored for conservation purposes under FSA fee title transfers, lands protected by a habitat management agreement, or wetlands protected by programs authorized by the Consolidated Farm and Rural Development Act, as amended.

## IV. METHODS TO QUANTIFY COMPENSATORY MITIGATION NEEDS

A. **Scientifically Based Models**--Prior to formulation of mitigation recommendations, the impacts of the proposed project or action needs to be analyzed and evaluated. When applicable, the "Habitat Evaluation Procedures" or other evaluation systems may be used as a tool for assessing the effects of wetland impacts (Solomon and Sexton 1993). In order to achieve general consistency, the use of a scientifically based habitat assessment methodology is recommended when time and resources allow. King et al. (1993) suggested that field offices use a standard methodology for requiring mitigation ratios. That methodology should take into consideration future with-project and future without-project scenarios over time; this will account for temporal loss of habitat value.

King and Adler (1991) propose a method of determining an appropriate replacement ratio that is based on the level and rate of functional replacement. It requires the use of wetland function assessment methods. The Corps of Engineers, Natural Resources Conservation Service, Fish and Wildlife Service, and Environmental Protection Agency are developing a method to assess wetland functions that is based on hydrogeomorphic characteristics of wetlands. This method will allow determination of mitigation ratios by comparing functional capacity units lost in impacted wetlands to FCU's generated in compensatory mitigation wetlands (Smith et al. 1995).

The hydrogeomorphic method assesses wetland functions on an areal basis and can be used to determine the amount of created or restored wetland required for compensatory mitigation. For example, if the impacted wetland has low functional capacity per unit area, a restored wetland could have a higher functional capacity per unit area and compensate for the lost wetlands with a smaller amount of area. The HGM may eventually replace the policy of simple ratios for compensatory mitigation, but at this point, it is uncertain whether HGM will live up to its intended objective as an effective rapid assessment methodology.

You may choose to develop new methodologies with your interagency counterparts that are tailored to specific area needs. It is recommended that tribe coordinate with counterpart State and Federal agencies in attempts to reach agreement on use of similar methodologies for evaluating wetlands functions and values.

The Midcontinent Ecological Science Center, Biological Research Division U.S. Geological Survey (formerly National Ecology Research Center) in Ft. Collins, Colorado, can be contacted to aid in the development of reliable assessment models, but they may require reimbursement. Contact the Landscape and Habitat Analysis Branch, i.e., Richard Stiehl at (970) 226-9421.

**B. Use of Ratios**--The use of site-specific ratios in assessing compensatory mitigation can be best applied in situations when the management potential of a particular mitigation site has been assessed through scientific means and when the types and quality of habitat affected by project impacts are relatively consistent. However, that combination is uncommon.

When the same mitigation site is used to mitigate separate impacted habitats that have equal habitat suitability value, the acreage tradeoff ratio will be the same each time, thereby reducing the need for site-by-site determinations. However, when the habitat quality of an impacted site is different from previously evaluated areas, a site-specific habitat assessment of the impacted area may be necessary to derive the appropriate amount of compensation needed. In other words, impacted habitats that perform different levels of functions and that have different values may warrant the use of different mitigation ratios.

In view of the fact that staff time and funding are rarely available to do adequate site-specific studies, to develop models, or even to interpret existing models, the tribes have decided that general guidance and replacement ratios need to be available for use by field biologists.

Neither the Corps, EPA, NRCS, nor the Service has an official national policy that specifies replacement ratios for compensatory mitigation. Recently published regulations for the establishment, use, and operation of compensatory mitigation banks recommend the use of functional assessment methods to determine the amount of compensatory mitigation credits available at a mitigation bank and the debits created by filling wetlands and loss of other aquatic resources. However, if an appropriate functional assessment technique is not available, then acreage may be used instead (Department of the Army et al. 1995).

The 1990 MOA between EPA and the Army regarding determination of mitigation under the Clean Water Act Section 404(b)(1) Guidelines states that replacement ratios may be greater than 1:1 where the functions and values of the area being impacted are demonstrably higher than the functions and values of the replacement wetlands, or where the likelihood of success of the mitigation project is low. On the other hand, it states that the replacement ratio may be less than 1:1 for areas where the functions and values associated with the impacted wetland are low and the likelihood of success of the mitigation project is high. The Tribes disagree with the latter option because ratios of less than 1:1 do not contribute to the national goal of "no net loss" and probably could not be justified on the basis of impacts to all the wetland functions.

Kruczynski (1990b) proposes ratios based on the method of compensatory mitigation used and the timing of the compensation. Up front compensatory mitigation that provides fully functional created or restored wetlands prior to initiation of the permitted work would require a 1:1 replacement ratio. If performed concurrently, wetland restoration would require a 1.5:1 replacement ratio, while wetland creation would require a 2:1 replacement ratio, and wetland enhancement would require a 3:1 replacement ratio.

King and Adler (1991) cite the following reasons for compensatory mitigation ratios greater than 1:1:

1. Time is required for the created or restored wetland to replace the functions lost in natural wetlands.

2. The functions performed by wetlands created or restored in the future are not equal, in terms of present worth, to the impacted wetlands.

3. Created or restored wetlands cannot always provide full replacement of functions even if they are considered successful.

4. Created or restored wetlands do not always function as expected so there is a need for some margin of safety to replace lost functions.

Replacement ratios of greater than 1:1 have been required because of the uncertainty of wetland creation and the amount of time required to develop fully functioning wetlands from either an area that will be allowed to revegetate naturally or planted with seedlings of wetland species (Kruczynski 1990a and 1990b; Kusler and Kentula 1990). According to Kusler and Kentula (1990), the most difficult wetlands to create or restore are isolated freshwater wetlands, particularly forested wetlands fed by ground water, because establishing the proper hydrology is difficult.

King and Bohlen (1994) report that little data is available on the cost effectiveness of projects undertaken as mitigation under the section 404 program. However, the data that was available revealed "that these projects have been generally under funded and ineffective and have had extraordinary high failure rates. Studies sampling mitigation projects in Florida, California, and the mid-Atlantic States, for example, have found that over 50 percent of mitigation projects failed."

The Tribes to take the position that it is usually appropriate to strive for greater than 1:1 replacement ratio of habitat. To ensure achievement of full replacement of functions, a minimum ratio of 1.5 acres to 1 acre should be advocated when practicable. An appropriate exception would be where restoration has been done in advance, the habitat is established, and the

desired functions have been scientifically assessed, or where there is a good history of success of such projects (e.g., restoration of hydrology in drained prairie potholes through plugging of drains).

Such an approach will ensure that other wetland functions, which are not easily quantified, are taken into consideration in the context of no net loss of overall wetland functions. It also will help account for the values lost through time until the replacement habitat is fully functioning. Last but not least, experience and follow up studies have shown that for a variety of reasons mitigation rarely achieves the desired goal of "no net loss" and 1:1 replacement of lost or damaged functions. Key factors include inadequate preconstruction planning and investigation (e.g., acquisition of necessary hydrological data); inadequate funding of initial development and operation, maintenance, and replacement costs; lack of or inadequate monitoring; and lack of contingency measures that can be readily implemented when problems arise.

Acreage replacement ratios may be based upon wetland functions, value to select species (as may be assessed by best professional judgment and current assessment methodologies), acreage, and cover type of the wetland to be altered. Also factors such as timing, type, practicability, and location of mitigation to be performed may be addressed. See the flow chart in Appendix C for the preference of mitigation strategies.

Tribal biologists should continue to use professional judgment on site-specific applicability, but variances that would result in less acreage of mitigation from the recommended ratios should be documented with appropriate rationale.

The guidance put forth here does not supersede existing Federal or State laws or regulations. Where Federal and State requirements differ, the more stringent ratios should apply. These ratios also can be applied for compensation of important upland habitat losses. When possible, mitigation sites should be protected by title transfers or easements. The following ratios are Fort Peck Tribes recommended minimum requirement:*

| | | |
|---|---|---|
| Advance creation | 1.5:1 | (forested, scrub-shrub) |
| | 1:1 | (emergent) |
| Concurrent creation | 2:1 | (forested, scrub-shrub) |
| | 1.5:1 | (emergent) |
| Advance restoration | 1.5:1 | (forested, scrub-shrub) |
| | 1:1 | (emergent) |
| Concurrent restoration | 2:1 | (forested, scrub-shrub) |
| | 1.5:1 | (emergent) |
| Advance enhancement | 3:1 | (forested, scrub-shrub) |
| | 2:1 | (emergent) |
| Concurrent enhancement | 4:1 | (forested, scrub-shrub) |
| | 3:1 | (emergent) |

* these ratios are believed to be generally consistent with those in use in many parts of the country.

PRESERVATION ratios will be determined on a case-by-case basis but usually should be at least in the range of 4:1 to 5:1, depending on the value of the impacted habitat compared to the preserved habitat. Exceptions as low as 2:1 may be made when the preserved land comprises less than 50 percent of the total acreage of wetlands in a comprehensive effort to restore and enhance a habitat complex (e.g., prairie wetland types). Other exceptions may be made when the preserved habitat is rare, unique, and/or essentially irreplaceable (e.g., Resource Category 1), or when it provides important habitat for a listed or candidate threatened and endangered species.

UPLAND habitat normally should be created or restored to offset losses of in-kind habitat. However, sometimes upland habitat that is restored or created adjacent to a wetland may be substituted for part of the replacement of previously degraded or altered wetlands, if deemed critical for wetland functions at the mitigation site. Examples of key functions provided by uplands include buffering from disturbance, filtering of sediments to prevent premature wetland aging, and enhancing bird habitat.

Most biologists recommend a minimum of 4:1 upland grass cover to wetlands for improving waterfowl brood habitat around seasonal wetlands and for nongame bird habitat. However, large, contiguous, undisturbed blocks of dense cover (e.g., 300 acres within 4 square miles) are needed to secure waterfowl nesting from predators. The Conservation Reserve Program Rule allows a ratio of 6:1 acres of uplands, including natural wetlands and restored prior converted wetlands, to be accepted under CP23 when they surround a newly restored, cropped wetland.

However, substitutions of upland habitat for wetland habitat may not be acceptable to the Corps or EPA unless a thorough functional analysis (e.g., HGM) documents the upland's value.

The above ratios for scrub-shrub and forested wetlands are more stringent than those for emergent habitat because it takes many years for planted saplings to duplicate the functions and values of the mature vegetation that existed previously. Also, forested and scrub-shrub compensatory mitigation sites generally have lower success rates than emergent wetland systems. The ratios for enhancement account for the fact that the habitat already exists and is functioning. Therefore, significant additions to existing functions will be required to offset the net loss of productive wetland acreage.

## V. COMPENSATORY MITIGATION TOOLS

A. **Individual Mitigation Projects**--Individual mitigation projects are those projects which will compensate for impacts resulting from an individual or standard Corps permit as defined in the "1990 MOA between the EPA and the Department of the Army Concerning Mitigation under the Clean Water Act Section 404(b)(1) Guidelines." These projects have value and should be given full consideration when selecting compensatory mitigation. However, be cognizant of the fact that individual "band aid" mitigation projects, especially when small, are difficult to monitor; and, as demonstrated via follow up evaluations, they often fall short of success. Thus, mitigation banking or other options may be preferred.

B. **Mitigation Banking**--Mitigation banking refers to the restoration, creation, and/or enhancement of wetlands expressly for the purpose of providing compensation in advance of or concurrent with proposed or future wetland impacts. It requires the interagency approval of a mitigation banking instrument. As such, this section of the Tribal guidance does not apply to mitigation measures established by Congress as part of the authorization for a federally constructed water project.

The Tribes strongly encourages use of a team approach to planning banks, establishing procedures for debiting and crediting, and monitoring success. It should be used as a general guide for all banking projects. Advance crediting may be necessary to enable desirable banks to be established. However, it is recommended that such actions be closely scrutinized, especially if creation is involved. Generally, the Tribes prefer that all construction on the bank site be completed, the needed hydrology be established, functional criteria set and habitat development at least begin to demonstrate success before any credits are given.

At a minimum, advance crediting should be commensurate with the level of habitat development in the bank as determined by the Mitigation Bank Review Team. For example, if the hydrology has been successfully established, you may provide some percent of credit (e.g., 15 percent) for that progress. Advance crediting also may be appropriate where restoration will be used and past experience indicates a high likelihood of success in that ecoregion and habitat type.

Most compensatory mitigation banks require replacement ratios between 1:1 and 2:1 (Environmental Law Institute 1994). According to the Environmental Law Institute (1994), there are five reasons why compensatory mitigation ratios are used:

1. To compare values of dissimilar wetlands.

2. To encourage restoration over enhancement or creation.

3. To compensate for the uncertainty that created or restored wetlands will duplicate the functions of natural wetlands.

4. In case the fully functioning created or restored wetlands will not function as well as the natural wetlands that are impacted.

5. As an incentive to delay the use of mitigation bank credits until full functional success has been attained at the bank site.

Mitigation banking can have some relevant advantages, particularly if (a) benefits are provided up front and (b) larger, better funded, and better managed wetland projects can be implemented. It is particularly useful for linear projects (e.g., highways and pipelines) that have many small fills that are difficult to mitigate but which can be cumulatively significant biologically. Depending on the terrain, it can be very difficult for such projects to avoid all wetland impacts. Therefore, sound mitigation banking projects should be encouraged, but they must be carefully planned and monitored. Also, responsible owners must be in charge of such banks, and necessary operating and maintenance funding must be legally ensured (e.g., via performance bonds).

Banks on public lands, other than National Wildlife Refuges, may be appropriate for projects that impact public lands, that are surrounded by public lands, or that benefit the public (e.g., highway projects), or where it is demonstrated to be a significantly ecologically preferable alternative.

C. **Mitigation Funds**--Mitigation funds or in-lieu fee programs wherein contributions from several mitigators are pooled to be used for one large future mitigation project are not mitigation banking per se but may in certain cases be an acceptable form of compensatory mitigation. It is mentioned as a type of mitigation to be considered along with mitigation banking in the Corps' latest notice on Nationwide Permits, published in the Federal Register on December 13, 1996 (Vol. 61, No. 241) (see page 65922).

Establishment of a fund may be effective in mitigating small wetland impacts for which the Corps routinely does not require compensatory mitigation, or where applicants are unlikely to develop adequate compensatory mitigation projects on their own. This type of mitigation has advantages similar to mitigation banks in that several mitigators can combine efforts to create a more substantial and effective mitigation project. However, there are inherent risks associated with its use. For example, pooled contributions are often used for after-the-fact mitigation.

The Tribes must be convinced, after considering the risks involved, that the mitigation project will be completed in accordance with a written proposal and in a timely manner. The mitigation project must be identified and clearly defined. A habitat assessment should be performed up front to determine mitigation project benefits and the amount of contribution required from the applicants/mitigators.

An account must be established to hold monetary contributions until project implementation. The Fish and Wildlife Foundation has provided that function for mitigation projects on National Wildlife Refuges. Nonprofit organizations, such as the Nature Conservancy, State agencies, and county governments, also may be capable of providing that function.

Applicants must be willing to contribute money up front, so that the project will begin as soon as sufficient startup funds are collected, and mitigation near the area of impact is still preferred.

## VI. ACCEPTABILITY OF OUT-OF-KIND/OUT-OF-BASIN COMPENSATION

The 1990 Army/EPA Mitigation MOA states that in-kind compensatory mitigation is preferable to out-of-kind compensatory mitigation. This MOA also requires the consideration of functions and values lost from the impacted area and their replacement through compensatory mitigation. In-kind compensation is defined in the "Mid-Atlantic Regional Guidelines on the Establishment and Operation of Wetland Mitigation Banks," dated November 1994, as the replacement of a specific wetland type, based upon the Cowardin classification system, with the same wetland type (Department of the Army 1996).

In-kind replacement refers to construction of a wetland that is hydrologically, structurally, and functionally equivalent to the impacted wetland (Eckles et al. 1994). The main goal of the replacement wetland is to perform the values and functions of the impacted wetland, thereby achieving a no-net-loss goal.

The Tribes promotes comparable in-kind replacement of all important wetland functions, taking into account temporal losses due to the time required for the compensated wetlands to become fully functional. For example, Eckles et al. (1994) agree that a long time is required to replace forested wetland communities. Shortly after the replacement wetland is constructed with the planned vegetation composition, it will probably not resemble the impacted wetland in terms of age, community structure, vigor, and growth potential. Therefore, Eckles et al. (1994) consider forested wetland replacement to be out-of-kind compensatory mitigation, at least in the short term, because there are differences in wetland function and values between the constructed wetland and the impacted wetland. Out-of-kind compensatory mitigation for forested wetland impacts cannot be avoided, but it can eventually achieve in-kind replacement with careful planning, construction in compliance with the plans for the wetland, and long-term management and monitoring (Eckles et al. 1994).

The construction of ponds, with or without palustrine emergent wetlands along the fringe of the pond, is not in-kind compensatory mitigation for impacts to forested wetlands. In-kind compensation is generally recommended because it promotes compensation for all wetland functions impacted. However, where a particular wetland type may be prevalent in an ecosystem, it may be ecologically preferable to compensate in habitat types or ecosystems that are more endangered or less common. Also, when in-kind habitat replacement is impracticable or technically infeasible, out-of-kind compensatory mitigation can be used. For example, out-of-kind mitigation may be acceptable if the mitigation site will result in significantly higher habitat value than the wetland impact site, or if the mitigation site is of equal habitat value, yet is more important to the overall ecosystem or priority species.

Normally, mitigation should take place in the same basin where the impacts occur to help ensure mitigation of affected functions. However, out-of-basin compensatory mitigation may be acceptable if it is beneficial to the impacted species, supportable ecologically, and compatible with other Tribal mitigation objectives for the affected geographic areas.

## VII. ENDANGERED SPECIES ISSUES IN THE CONTEXT OF MITIGATION

To ensure that mitigation sites will not adversely affect listed or candidate species and/or their critical habitat, the following must be considered:

A. Evaluate effects to threatened and endangered species when considering compensatory mitigation proposals that result in habitat changes (i.e., enhancement and creation of wetlands).

B. Address all indirect, secondary, and cumulative effects of mitigation proposals; keeping in mind a goal of beneficial, insignificant, discountable, or no adverse effects on protected species.

C. When species may be affected, coordinate closely with field office endangered species biologists regarding potential impacts and section 7 consultation responsibilities.

D. Look for opportunities to benefit candidate as well as listed species, to help preclude the need for eventual listing or to speed recovery.

## VIII. IMPROVING CREATION AND RESTORATION SUCCESS

Kusler and Kentula (1990) summarize factors affecting the success of wetland creation and restoration:

A. Restoration or creation of a wetland cannot completely duplicate a natural wetland, but some wetland systems can be approximated. Individual wetland functions can be restored or created.

B. Partial failures are common. Some of the reasons include:

1. Lack of basic scientific knowledge.
2. Lack of expertise in design.
3. Lack of supervision during implementation.
4. Improper site conditions, such as water depth, hydroperiod, substrate, nutrients, and grades.
5. Exotic species colonizing the site.
6. Herbivory by geese, muskrats, and deer.
7. Destruction of vegetation or soil by catastrophic events.
8. Lack of adherence to project plans.
9. Failure to protect sites from human impacts such as sediments, toxics, vehicles, livestock and water pumping.
10. Failure to maintain planned wetland hydrology.
11. Failure to monitor

C. Success varies with wetland type and goals for wetland functions and target species.

D. Not all wetland functions can be created or restored to the same degree.

E. Short-term success may differ from long-term success because the constructed or restored wetland may not continue to function over time.

F. The ability to assess, recreate, and manipulate hydrology is important for long-term success.

G. Successful creation or restoration of wetlands depends upon the ability to manage, protect, and manipulate the projects and surrounding land over long periods of time.

H. Careful supervision and project design by knowledgeable personnel is necessary for successful wetland creation and restoration.

I. Site-specific analysis of factors is needed for improving the chances of success for each wetland creation or restoration project. There is no "cook book" for creation or restoring wetlands.

Kusler and Kentula (1990) make several recommendations to improve the success of wetland creation and restoration:

A. A wetland restoration and creation proposal must be reviewed with great care because there are many factors affecting the potential success of the project.

B. Multi-disciplinary expertise and careful supervision are required for project planning, implementation, and monitoring, with any necessary corrective measures.

C. Well-defined, site-specific goals should be defined to determine proposed wetland characteristics and functions.

D. Detailed plans of the project should be prepared in advance so that they can be reviewed by the permitting agencies to evaluate the site-specific goals and probability of success.

E. Assessment of the functions and values of the impacted wetland should be done to help define the goals of the wetland creation or restoration project and evaluate its success.

F. Wetland hydrology (e.g., water depths, hydroperiod, and nutrient concentrations) must be carefully considered in the project design.

G. Created or restored wetlands should be designed to be self-sustaining for long-term existence.

H. The design of the wetland should be considered in relation to other wetlands and communities in the watershed.

I. Buffers, barriers, and other mechanisms should be considered to protect the project site.

J. Wetland restoration should be preferred to creation because restoration has a greater chance of success.

K. Monitoring and corrective measures, which are usually required for success, should be incorporated into the project.

L. Long-term management may be required to ensure continuous functioning of the project.

M. Compensation ratios greater than 1:1 should be used to account for the risks and uncertainties inherent in wetland creation and restoration. Standards for corrective measures also should be incorporated in the project plans and designs.

## X. STANDARD PERMIT REQUIREMENTS REGARDING COMPENSATORY MITIGATION

A. **Success Criteria and Monitoring Requirements**--The Tribes should encourage Corps Districts to develop standard monitoring requirements and success criteria, when applicable. For example, a permit condition could include the standard that an 80 percent revegetation success rate of target species at target size (e.g., specified dbh) will be achieved by the end of the second growing season. Furthermore, it could require provision of photographic documentation after planting at 3- and 5-year intervals.

B. **Performance Bonds**--Performance bonding is typically used in mitigation banking to ensure project success. However, performance bonds also can be used to help ensure implementation of an individual mitigation project in those situations where factors such as the following are involved: (a) the need for expeditious permit issuance, (b) large projects, (c) very complex mitigation, or (d) a developer with uncertain fiscal capability.

## XI. MITIGATION FOLLOW-UP

Follow-up evaluation of permitted compensatory mitigation is strongly recommended in order to improve the effectiveness of Tribal recommendations. It also will be an inducement for developers to meet their requirements and will provide useful information for enforcement efforts. The following guidance can be used to assist in follow up evaluations:

A. Randomly select previously permitted sites to review, and schedule time at the beginning of the fiscal year to ensure these inspections will be completed. During the year, also select ongoing, potentially problematic permit and project actions that should be monitored. Time intervals for monitoring are at the staff biologist's or field supervisor's discretion.

B. The results of follow-up and monitoring can be used to improve mitigation success and recommendations made by the Tribe. Therefore, you may wish to focus on important projects, complex mitigation, certain contractors, and where experimental techniques and construction designs will be employed, especially for creation and enhancement. Report the results to the Corps and EPA for follow up actions or remedial measures as needed. The Corps is supposed to take action if a permittee is not in compliance with mitigation requirements of the section 404 permit, in accordance with 33 CFR 326.

C. When available, use Corps data bases (e.g., RAMS and LANS Systems) to help track issued permits and to identify the type and timing of mitigation required in the permit conditions.

D. When possible, conduct follow-up and monitoring studies with interagency teams. Such an approach likely will result in more successful identification of problems and initiation of corrective actions.

## APPENDIX B.
## DEFINITIONS OF FORMS OF COMPENSATORY MITIGATION

A. **Restoration**--The process of returning the functions of a disturbed, degraded, or totally altered site to its original status before it was damaged. The focus often is restoration of the hydrology to the original contour and restoration of the original plant community to the extent practicable. In most situations, this form of mitigation yields the greatest benefit with the least amount of risk. Therefore, restoration should generally be given priority over other forms of compensatory mitigation. Emphasis should be placed on restoring highly deteriorated sites where benefits are greatest. An example of indirect restoration might be to fence wetlands to preclude further damage from livestock and thus enable recovery. Other examples of restoration include removal of silt caused by erosion to approximately the original profile.

B. **Enhancement**--The process of improving one or more functions of an existing wetland or improving the capability to manage the wetland to achieve certain wildlife objectives (e.g., moist soil management). This type of mitigation also can be achieved without too much risk of failure and can be valuable; however, it does not usually yield nearly the level of increased overall benefits provided by restoration. Because the area affected is already in wetland status, enhancement of habitat value may not compensate partially or fully for loss of other wetland

functions such as floodwater storage or water purification (which may be a critical element lost). Furthermore, conversion of one wetland type to another may be an appropriate habitat management tool on refuge lands, but be careful when giving credit for enhancement on private lands. By converting a wetland you probably have not contributed to the "no net loss" goal. You should document the benefits versus the losses of functions or EPA or the Corps may not agree that this form of compensation is acceptable.

Examples of enhancement include creating some open water in a cattail-choked wetland, installment of water control structures, construction of nesting islands, bottom recontouring to provide a variety of water depths, construction of berms to prevent flooding and silt deposition, acquisition or development of a more secure water supply, or enlargement of a wetland. When enlarging a wetland, efforts should be made to design the contours of the wetland so inundated temporary and seasonal wetlands are replaced, when practicable and desirable from a wildlife management standpoint.

C. **Creation**--The process of converting an upland site to a functional wetland. This form of mitigation sometimes has a high degree of failure in some complex ecosystems (e.g., estuaries). Hence, it should generally not be considered unless restoration opportunities are not available. However, this approach also has proven to be a workable, preferable approach to enhancement in some other ecosystems (e.g., in prairie wetlands and subirrigated meadows) and should be considered when applicable.

D. **Preservation**--The process of ensuring perpetual existence of wetland functions. Preservation may be implemented through structural means or changes in land ownership and land use. Under exceptional circumstances, the preservation of existing wetland areas may be used as the sole or partial basis for compensating wetland losses. While this mitigative form does not yield additional wetland functions, it can be an effective tool in maintaining wetland values that surely would be lost without such measures. It also is appropriate to use on a limited basis for rare habitat types (e.g., saline wetlands in eastern Nebraska) and habitat types that are difficult to create or irreplaceable (e.g., high elevation fens). However, Region 6 generally discourages this alternative, particularly when used solely.

# APPENDIX D.
# WETLAND CLASSIFICATION AND ASSESSMENT

**Background**

Wetland classification is intended to define different type of wetlands, while wetland assessments are intended to evaluate the functions of a wetland. Several classification and assessment methods exist or are being developed and refined. These have been developed for different situations and/or different uses.

The purpose of the assessment is to determine the "importance" of a wetland and then the potential need to protect, preserve, or maintain such importance if the wetland

was developed or modified in some way. This "importance" has typically been described in terms of functions and values. The functions of a wetland are those self-sustaining properties of a wetland that exist in the absence of society. Functions can result from both living and non-living components of a specific wetland. Functions relate to the ecological significance of wetland properties without regard to subjective human values or without a human value being placed upon that function. Values are benefits that derive from one or more functions and the physical characteristics associated with a wetland. The value of a particular wetland function is based on human judgment of the worth, merit, quality or importance attributed to those functions.

The following are some classification and assessment methods that are being used or developed for Montana.

**Hydrogeomorphic Functional Assessment (HGMA)**

The HGMA method is being developed by the Corps of Engineers in conjunction with other federal agencies and the academic community. This approach is based upon a hydrogeomorphic classification of wetlands to assess wetland functions (Brinson). It intends to satisfy technical and regulatory requirements, and a variety of other local government planning and management situations requiring assessment of wetland functions. Federal regulations require the use of the HGMA for all 404 permits where the HGMA methods have been developed at the regional level. However, at this time, no regional guidebooks are complete. Currently, two HGMA Guidebooks are being developed in Montana for wetland assessments one for montane pothole and one for riverine wetlands for the Northern Rockies Intermountain West Region. These guidebooks are due out in the fall of 1997 and 1998.

**Proper Functioning Conditioning (PFC)**

The Bureau of Land Management and the Forest Service are required to put all riparian and wetland areas in proper functioning condition using the principles in Riparian Area Management, Process for Assessing Proper Functioning Condition on running water (lotic) areas and for still water (lentic) areas. Areas are classified as properly functioning, functional-at risk, nonfunctioning or unknown. The minimum requirement for assessment is a qualitative, rapid assessment using a checklist.

A quantified, more detailed procedure has been developed by BLM and the Montana Riparian and Wetland Association for running water (lotic), still water (lentic) and large river systems. It's procedure is also being used by the Bureau of Reclamation, Bureau of Indian Affairs, various Tribes, Fish and Wildlife Service, National Park Service, National Resource Conservation Service, and private companies. Field data are collected and the communities and habitat types are determined using Classification and Management of Montana's Riparian and Wetland Sites (Hansen et al. 1995). The data are used in a rating system and functioning condition of the area is calculated. The database is available on internet (HTTP//:www.rwrp.umt.edu).

**Cowardin Classification and the National Wetland Inventory (NWI)**

In 1974, the U..S. Fish and Wildlife Service was directed to design and conduct the National Wetlands Inventory to establish a wetland database for the entire nation.

This mandate came from a growing awareness that wetlands provide many ecological and social values, and that wetlands are disappearing at a rapid but poorly documented rate. NWI was designed with two goals in mind: one, classify and map the nation's wetlands, and two, develop statistics with which to evaluate wetland status and trends. NWI is based on the Classification of Wetlands and Deepwater Habitats of the United States by Cowardin et al. 1979. This classification is intended to describe ecological taxa, arrange them in a system useful to resource managers, furnish units for mapping, and provide uniformity of concepts and terms.

**Montana Department of Transportation Wetland Field Evaluation**

Other methods have been developed to assess wetland factors in Montana. The Montana Department of Transportation and other agencies have developed a Wetland Field Evaluation Form for reviewing proposed transportation projects. This method is used to evaluate small projects that have no more than minimal adverse impacts to wetland resources.

## REFERENCES


Department of the Army, Environmental Protection Agency, Department of Agriculture, Department of the Interior, and Department of Commerce. 1995. Federal guidance for the establishment, use and operation of mitigation banks. Federal Register, Vol. 60, No. 228, page 58605. November 20, 1995.

Department of the Army. 1996. Memorandum for Division Engineer (Attn: CENAD-ET-O) from John P. O'Hagan, Chief, Operations Division, Subject: Proposed revision to Chapter 105 of Pennsylvania safety and waterway management rules and regulations. 20 pp.

Eckles, S.D., T. Barnard, F. Dawson, T. Goodger, K. Kimidy, A. Lynn, J. Perry, K. Reisinger, C. Rhodes, R. Zepp, and the Chesapeake Bay Wetlands Workgroup. 1994. Mitigation technical guidance for Chesapeake Bay Wetlands. U.S. Environmental Protection Agency. 64 pp.

Environmental Law Institute. 1994. National wetland mitigation banking study: wetland mitigation banking. Institute for Water Resources Report 94-WMB-6. 178 pp.

Fish and Wildlife Service. 1988. Mitigation Banking. Biological Report 88(41). July 1988. 103 pp.

Fish and Wildlife Service. 1993. Interagency activities - general mitigation policy. Service Manual Part 501 FW 2. Release Number 069. February 24, 1993.

Fish and Wildlife Service. 1994. Memorandum from Deputy Director Richard Smith, Subject: Relationship of Federal Restoration Programs to Mitigation Recommendations for Federal Permits. 2 pp.

Fish and Wildlife Service. 1996. Habitat assessment - habitat evaluation procedures. Service Manual Part 870 FW 1. Release Number 241. March 20, 1996.

King, D.M., and K.J. Adler. 1991. Scientifically defensible compensation ratios for wetland mitigation. 20 pp.

King, D.M., and C. Bohlen. 1994. Estimating the cost of restoration: National Wetlands Newsletter. Environmental Law Institute, Vol. 16, No. 3. May/June 1994.

King, D.M., C.C. Bohlen, and K.J. Adler. 1993. Watershed management and wetland mitigation: A framework for determining compensation ratios. University of Maryland System Draft Report UMCEES-CBL-93-098. 17 pp.

Kruczynski, W.L. 1990a. Mitigation and the Section 404 program: A perspective. Pages 549-554 in J.A. Kusler and M.E. Kentula, eds. Wetland creation and restoration: the status of the science. Island Press, Washington, D.C.

Kruczynski, W.L. 1990b. Options to be considered in preparation and evaluation of mitigation plans. Pages 555-570 in J.A. Kusler and M.E. Kentula, eds. Wetland creation and restoration: the status of the science. Island Press, Washington, D.C.

Kusler, J.A., and M.E. Kentula. 1990. Executive summary. Pages xvii-xxv in J.A. Kusler and M.E. Kentula, eds. Wetland creation and restoration: the status of the science. Island Press, Washington, D.C.

Scodari, P., and L. Shabman. 1995. National wetland mitigation banking study. Commercial wetland mitigation credit markets: theory and practice. Institute for Water Resources Report 96-WMB-7, USACE, Alexandria, Virginia. November 1995.

Smith, R.D., A. Ammann, C. Bartoldus, and M.M. Brinson. 1995. An approach for assessing wetland functions using hydrogeomorphic classification, reference wetlands, and functional indices. Wetlands Research Program Technical Report WRP-DE-9.

Solomon, R.C., and N.R. Sexton. 1993. A comparison of methods for evaluating wetland functions and values. U.S. Department of the Interior/Fish and Wildlife Service, Office of Information Transfer, Ft. Collins, CO. 2 pp.

# APPENDIX H

# BIOLOGICAL ASSESSMENT

DRAFT
BIOLOGICAL ASSESSMENT
FORT PECK RESERVATION RURAL WATER SUPPLY PROJECT

## INTRODUCTION

Provisions of the Endangered Species Act of 1973 (as amended) direct federal agencies to seek to conserve threatened and endangered species and to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of threatened or endangered species, or result in adverse modification of their critical habitats. This Biological Assessment (BA) documents the assessment of possible effects from the proposed Fort Peck Reservation Rural Water Supply (FPRRWS) project on listed species and proposed designated critical habitat known to occur in the affected area. It serves as the document under Section 7 of the Endangered Species Act for consultation on the pallid sturgeon (endangered), piping plover (threatened), interior least tern (endangered), bald eagle (threatened), and whooping crane (endangered), and also for conferencing on the critical habitat for piping plover (proposed).

## DESCRIPTION OF THE PROJECT

Congress authorized funding for the FPRRWS under PL 106-382, 114 Stat. 1451 at $175 million, with additional funding from the state of Montana and the Dry Prairie water users contributing another $17 million. Considering all funding sources, the total projected cost of the project in 1998 dollars is $192 million. Because the project would be constructed over a 10-year period, this authorized funding amount would be adjusted for inflation.

When completed, the project would serve a maximum of about 27,434 people. The population of the service area in 1990 was 24,829 (10,722 in Fort Peck service area and 14,107 in Dry Prairie service area). The 2000 census shows that the population for the combined Fort Peck and Dry Prairie service areas is 23,106 persons.

After the project is constructed, 25 full-time employees would be needed for operation and maintenance of both the Reservation and Dry Prairie service areas, with an annual budget of $3.572 million.

The Fort Peck Tribes have federal reserved water rights for 1 million acre-feet from the Missouri River dating from 1888. Most water rights in the western United States have priority dates based on when water was first put to beneficial use (e.g., agriculture). However, federal reserved water rights for Indian reservations and other federally reserved lands have priorities dating back to at least as early as establishment of reservations, even if water use on the reserved lands began at a much later date. The proposed project would use about 6,200 acre-feet each year. The Tribes have agreed to provide the Dry Prairie service area water from tribal water rights at no cost for the life of the project.

Major components of the proposed project include the following:

Intake Structure near Poplar

A screened intake would be constructed in the channel of the Missouri River near Poplar, for a distance of about 150 feet, to withdraw water into two 42-inch, non-metallic pipes (see attached figure). The intake and mesh size (0.25 inches or smaller) of the screen on the intake structure would be designed so that water velocities entering the intake would not exceed 0.50 feet per second. The intake structures would be placed in a sump and the 42-inch pipes would be placed in a trench in the river bottom that would be excavated from a barge.

Raw water would be conveyed in the 42-inch pipes to a wet well located beyond the 100-year floodplain. The gradient of the pipe would be designed so that water would be delivered from the intake by gravity. The wet well would be constructed to a depth of about 30 feet to allow gravity flow from the intake. The wet well would be about 15 feet in diameter to accommodate vertical turbine pumps placed in the well to lift water to the treatment plant. Pumping units would be housed in a facility with heat and ventilation and would be equipped with cranes to remove and repair the pumps. The water intake also would be equipped with air for delivery to the intake screens to keep them free from debris that could restrict water intake.

The Department of the Interior (Bureau of Reclamation or Bureau of Indian Affairs) would monitor the operation of the project for entrainment of sturgeon larvae and other small organisms. The intake structure would be designed so that a small-mesh (1/8") modified fyke net could be placed at the junction of the intake pipes and the wet well. The net would be suspended in the water stream supplying the wet well to collect larval fish, fish eggs, and other small organisms. Sampling in this fashion will take place each year during the period of May 15 to July 30. The nets would be operated at least 5 times, no less than one week apart, with a minimum of twelve hours of sampling time (nets would probably have to be removed and cleaned several times during sampling time) per sample period. Larval fish would be retained in the sampling nets, preserved, quantified, and identified to species. An annual monitoring report would be prepared and submitted by the agencies to the U.S. Fish and Wildlife Service. If pallid sturgeon larvae are found in the intake structure (i.e., wet well), consultation would be reinitiated under Section 7 of the Endangered Species Act.

Water Treatment Plant

A conventional water treatment plant is proposed for the project. Conventional water treatment involves coagulation/flocculation, sedimentation, filtration to remove suspended particles from the raw water, and disinfection of filtered water to kill microorganisms. Other conventional water treatments may also include activated-carbon absorption, alum and cation coagulation, pH modification, corrosion inhibition, and fluoridation. The water treatment would be designed to treat a maximum of 13.099 million gallons per day.

Pumping Stations and Reservoirs

Twenty primary pumping stations on the core pipeline system and 90 smaller pumping stations on branch lines are proposed to move water throughout the project area. Each primary pumping station would have four pumps. One pump would have the capacity to provide one-half the daily

maximum demand. Each primary pumping station would have backup pumps that would be available for emergency use.

Pumping stations would be operated by electricity from local distribution lines and would be equipped with heating and ventilation equipment. Pumping stations with electrical demands greater than 5 horsepower would require three-phase power, whereas smaller pumps would need one-phase power. Three-phase power is currently available for pumping stations at all locations on the main pipeline system. Some upgrades may be required on existing electrical distribution systems along branch lines off the main pipeline system. The twenty primary pumping stations would have a diesel backup generator in the event of electrical power failure. Pumping stations would also be used as access points to add additional chlorine to the system if necessary.

Each pumping station would have an associated storage tank. Storage tanks would provide water when short-term demands during peak-use periods are greater than can be supplied by the pipeline.

Pipeline Transmission System

The pipeline for the project (Figure 2) would extend about 3,191 miles and have pipelines ranging from 2 to 24 inches in diameter (Table 1). Approximately 1,370 miles of pipeline would be placed in the Fort Peck service area and 1,820 miles would be in the Dry Prairie service area (Table 1). Maximum pressures in the pipeline would be 200 pounds per square inch. Pipe sizes were determined by use of a hydraulic model that analyzed projected water demands at various locations, topographic features that affect pumping requirements, and electricity sources and costs.

Table 1
Miles of Pipeline by Diameter for the Fort Peck Reservation and Dry Prairie Service Areas

| Pipe Diameter | Fort Peck | Dry Prairie | Total Miles |
|---|---|---|---|
| 2 inch | 816.4 | 1,072.3 | 1,888.7 |
| 4 inch | 384.2 | 517.9 | 902.1 |
| 6 inch | 48.5 | 85.8 | 134.3 |
| 8 inch | 0 | 59.6 | 59.6 |
| 10 inch | 0 | 27.5 | 27.5 |
| 12 inch | 14.3 | 39.1 | 53.4 |
| 14 inch | 52.7 | 18.0 | 70.7 |
| 16 inch | 30.0 | 0 | 30.0 |
| 24 inch | 24.3 | 0 | 24.3 |
| Total miles of pipe | 1,370.4 | 1,820.1 | 3,190.5 |

Environmental Commitments

The following environmental commitments are part of the proposed action:

- Construction would not occur within line of sight of occupied piping plover and least tern nesting habitat during the critical time between nest initiation and fledging. This can be expected to occur between May and August.
- Monitor the intake annually for the presence of pallid sturgeon larvae.
- Reinitiate consultation with USFWS if pallid sturgeon larvae are found in the intake.
- Reinitiate consultation is additional species are listed or species status changes.

To help ensure that these commitments are implemented and successful, a team of resource specialists representing state and federal agencies and project sponsors will be assembled prior to initiation of construction activities. This team will monitor construction and operation phases of the project for compliance with environmental commitments.

PROJECT AREA DESCRIPTION

The project area for the proposed FPRRWS includes all or parts of Valley, Daniels, and Sheridan counties - approximately 7,800 square miles - in northeastern Montana. Vegetation on the Reservation and Dry Prairie service area is typical of the northern Great Plains with an interspersion of native plant communities and cropland (primarily hay and small grains). Within the project area, approximately 60 percent is cropland, 30 percent is rangeland, 5 percent is riparian/wetland, and the remainder is developed or barren land. Croplands produce mainly small grains or hay, or are idle in the Conservation Reserve Program (CRP).

Because approximately 60 to 80 percent of native grasslands in the Northern Great Plains have been converted to croplands, remaining tracts of prairie have become a valuable resource for native plants of cultural and medicinal value and for wildlife habitat. Many wildlife species associated with prairie grasslands have greatly declined in numbers and geographic range because cultivation, overgrazing, and noxious weed infestations have eliminated or degraded native grasslands.

Native prairie is present in relatively large tracts in the western and central parts of the Reservation. One tract of native prairie, contiguous with federal lands adjacent to the Reservation, is of national significance because of its large size, good range condition, and diverse plant communities (Brian Martin, Nature Conservancy, pers. comm. 1998).

Woody vegetation is largely confined to floodplains of perennial rivers and streams (e.g., Missouri River, Milk River, Poplar River, Smoke Creek, Wolf Creek, Porcupine Creek and Muddy Creek) (Hansen et al 1995) and woody draws that dissect uplands.

Large parts of the project area have been converted from native vegetation to agricultural fields, primarily on fertile floodplains and upland benches. Most farmland is planted to small grains or is in the Conservation Reserve Program (CRP). Wetlands are found along perennial and ephemeral drainages, in association with reservoirs and stock ponds, and in poorly drained depressions.

Fish populations of the Missouri River, from its confluence with the Yellowstone River to Fort Peck Dam, have been described by Gardner and Stewart (1987) and Bergstedt and White (1997). Sport fish include walleye, sauger, channel catfish, northern pike, shovelnose sturgeon, and paddlefish. Fisheries resource values within the project area are class I (outstanding). Montana species of special concern include the blue sucker, northern redbelly dace, pallid sturgeon, sicklefin chub, sturgeon chub, and shortnose gar. The river immediately below the dam is clear and cold, unlike the warm, turbid Missouri that enters Fort Peck Reservoir. The river begins to reassume prairie stream characteristics as it flows east and is joined by the Milk and Poplar rivers that add warmer and more turbid water.

## THREATENED AND ENDANGERED SPECIES

Species protected under the Endangered Species Act of 1973, as amended, that are known to occur or have the potential of occur in the project area include the bald eagle (threatened), piping plover (threatened), least tern (endangered), pallid sturgeon (endangered), and whooping crane (endangered). Proposed critical habitat for piping plover is also present in the project area (Federal Register Vol. 57 No.55, March 21, 2002). If there are any additional species listed, or a species' status changes, consultation will be reinitiated at that time.

### Pallid Sturgeon

The pallid sturgeon exists in the Missouri River upstream and downstream of Fort Peck Dam. Populations of this fish in Montana are declining, with no evidence of natural reproduction. Pallid sturgeon between Fort Peck Dam and Lake Sakakawea are an important portion of the total population (Tews 1994). Adult fish in this reach are nearing the end of their life expectancy and may attempt reproduction only another time or two (U.S. Fish and Wildlife Service 2000a).

Pallid sturgeon move downstream from below Fort Peck Dam to below the confluence of the Yellowstone and Missouri rivers in summer and tend to return to the Fort Peck tailrace in winter. Most pallid sturgeon have been documented in the Missouri River downstream from its confluence with the Yellowstone rivers (Liebelt 1998). No pallid sturgeon spawning sites have been identified in the Missouri River above the confluence; however, there, may be suitable sites in the Missouri and possibly in the Milk River. It is estimated that 50 to 100 pallid sturgeon remain in the Missouri River above Fort Peck Dam, and 200 to 300 pallid sturgeon remain in the Missouri and lower Yellowstone rivers between Garrison Dam in North Dakota and Fort Peck Dam (Krentz 1997, Gardner 1994).

Mature pallid sturgeon eat primarily fish and aquatic organisms (Carlson et al 1985). It is believed that immature pallid sturgeon mostly eat benthic invertebrates.

Pallid sturgeon spawn in spring and early summer (from April into July) releasing their eggs at intervals. Spawning is triggered by increased flow from runoff. Increased spring flows also initiate spawning by paddlefish and shovelnose sturgeon. Adhesive eggs are released in deep channels or gravelly riffles and are left unattended. Newly hatched pallid sturgeon become buoyant and active immediately after hatching, floating downstream with the current.

Observations of post-hatch pallid sturgeon in culture conditions (U.S. Fish and Wildlife Services 2000b) indicate that larval sturgeon are poor swimmers that actively swim upward in the water column until exhaustion and then settle and drift. This activity is repeated until the larval sturgeon develop sufficiently to maintain themselves in the current. It is estimated that larval sturgeon drift 33 to 54 miles before developing sufficiently to maintain their position in the current (U.S.D.I. 2001).

The Pallid Sturgeon Recovery Plan (U.S. Fish and Wildlife Service 1993) has identified four priority areas on the Missouri River for recovery actions. These river reaches have remnants of what is believed to be suitable pallid sturgeon habitat, provided the hydrology and chemical elements of the aquatic ecosystem, such as temperature and turbidity, are restored. The recovery priority areas are: (1) from the mouth of the Marias River to the headwaters of Fort Peck Reservoir; (2) from Fort Peck Dam to the headwaters of Lake Sakakawea, including the Yellowstone River; (3) from 20 miles upstream of the mouth of the Niobrara River to the headwaters of Lewis and Clark Lake; and (4) from Gavins Point Dam to the Mississippi River.

Regulated flows from Fort Peck Dam coupled with lower water temperatures during spring and early summer have failed to provide adequate spawning cues for pallid sturgeon in the project area. The U.S. Army Corps of Engineers proposes to modify operations of Fort Peck Dam to provide additional water from the surface of Fort Peck Reservoir to stimulate spawning and optimize spawning habitat for pallid sturgeon and other native fish. A test release was scheduled for 2001, but low reservoir levels precluded the test. If storage levels allow, the test will take place in 2002 and a full release of 19,000 cubic feet per second will occur in 2003. A monitoring program will be in place to evaluate effects of the spill.

In recent years, pallid sturgeon populations have been augmented by release of hatchery-reared fish. In 1994 and 1997, 7,000 and 3,000 fingerlings were released into the Mississippi and Missouri rivers, respectively. In 1998, 745 hatchery-reared yearling pallid sturgeon were released at three sites on the Missouri River above Fort Peck Reservoir and 750 yearling sturgeon were released near the confluence of Yellowstone and Missouri rivers (U.S. Fish and Wildlife Service 2000). Recently, the discovery of iridovirus at the Gavins Point National Fish Hatchery, where pallid sturgeon are being raised, has resulted in cessation of the planting program until the potential impact of the virus can be determined.

Piping Plover

Critical habitat for piping plovers has been proposed along the Missouri River (50CFR Part 17, 66:13). Proposed critical habitat in the project area would include sandbars in the Missouri River from the community of Wolf Point downstream to the Montana-North Dakota border. Numerous alkali lakes and Medicine Lake in the Dry Prairie service, in northeastern Sheridan County area, have also been proposed as critical habitat for piping plover.

The piping plover is a small shorebird that occupies sand and gravel bars and beaches along major rivers and around lakes, reservoirs, ponds, and alkali wetlands (Reel et al 1989). Females nest in small depressions scraped in sand and gravel during March and April. Nests are constructed on the higher parts of sandy shores away from the water line and vegetation.

The reach of the Missouri River from Fort Peck Dam to Lake Sakakawea has a small breeding population of piping plovers. In the project area, piping plover nesting has been reported in the Missouri River downstream from Wolf Point. Outside of the reservation they nest on Medicine Lake and small alkali lakes in Sheridan County.

The Army Corps of Engineers (2001) estimates that there are 50.4 acres of piping plover habitat along the Missouri River on the Reservation. This acreage is provides habitat for a very small percentage the piping plover population that nests on the Missouri River. This area is counted along with Fort Peck Lake, the river below Fort Randall dam, and Lewis & Clark lake in Nebraska and collectively these areas account for 13 percent of that population (Army Corps of Engineers 2001).

Interior Least Tern

Interior least terns are water birds that feed almost exclusively on small fish, crustaceans, and insects they catch by skimming over the water surface or by hovering and diving from the air (Reel et al 1989). Nesting of these birds has been documented on the Reservation on the Missouri River from Wolf Point to the Reservation border. Tern populations on the reach from Fort Peck down to Lake Sakakawea fluctuate with habitat conditions, as they do elsewhere in their range. Numbers peaked in 1997 when other habitat along the Missouri River was inundated (U.S. Fish and Wildlife Service 2000a).

Like the piping plover, the Army Corps of Engineers (2001) estimates that there are 50.4 acres of least tern habitat along the Missouri River on the Reservation. This acreage is counted in the same fashion as piping plover (collectively with other areas of low percentage) and those areas account for 14% of the least tern population on the Missouri River.

Fort Peck Reservoir is at the northwestern limit of this tern's breeding range. The breeding habitat along the Dry Arm portion of the reservoir has been surveyed annually since 1987 (U.S. Fish and Wildlife Service 2000).

Flows that scour vegetation from sandbars and build sandbars create least tern habitat on the Missouri River. Construction of Fort Peck Dam has altered these conditions by reducing the frequency of flooding downriver and minimizing sediment deposition. Erosion and inflows from the Milk River have formed sandbars below its confluence with the Missouri as a result of deposition of suspended sediment. The Poplar River also transports a considerable amount of suspended fine sediments.

Bald Eagle

No known bald eagle nests have been reported on the Reservation by the Montana Natural Heritage Program (search of data base) and there are no know nesting territories in the project area. Bald eagles are most frequently observed on the Reservation along the Missouri River during winter and spring, where they are migrants. Bald eagles typically are attracted to open water in winter because potential prey (i.e., fish and waterfowl) is present and available. Bald

eagles also prey on jackrabbits and feed on carrion (livestock and wildlife), especially deer killed by vehicles. No known communal roosts or dense feeding concentrations of eagles are known for the project area.

Of the more than 170 bald eagle nesting territories in Montana, at least 29 occur along the Missouri River above Fort Peck Reservoir. However, breeding records below Fort Peck are scarce, although parts of the floodplain have suitable nesting habitat (i.e., large cottonwoods). The Montana Bald Eagle Management Plan identifies a need for three additional territories in this area. The only bald eagle management zone in Montana that has not met recovery goals established in the Pacific Bald Eagle Recovery Plan encompasses the Missouri River.

Montana ranks in the top 15 states in total numbers of wintering eagles. Wintering populations on the Missouri River in Montana between 1993 and 1989 have ranged from a low of 54 in 1987 to a high of 171 in 1989 (U.S. Fish and Wildlife Service 2000a).

Whooping Crane

Whooping cranes breed in Wood Buffalo National Park in Northwest Territories, and winter along the Texas coast, primarily at the Aransas National Wildlife Refuge. Some whooping cranes migrate through the northeastern part of Montana, including the Reservation in spring and fall. According to Berglund (1997), two whooping cranes were seen near Fort Peck Dam and in Sheridan County in 1994. During migration, whooping cranes rest at wetlands and feed on cultivated grains.

## EFFECTS DETERMINATION

Pallid sturgeon

Adult pallid sturgeon may be present in the area during construction, but would be able to avoid the construction activities and not be affected by them.

During operation of the project, the proposed water intake at Poplar is designed to prevent uptake of juvenile and adult pallid sturgeon and other species of fish. The mesh over the intake would have openings no larger than 0.25 inches (6.4 millimeters), with intake water velocities less than 0.5 feet per second. While the intake would not likely entrain juvenile pallid sturgeon, it may entrain larval pallid sturgeon if they were present.

Therefore, the primary concern with pallid sturgeon is entrainment of larval fish by the water intake in the Missouri River during operation. It is generally believed that pallid sturgeon have not successfully spawned in the Missouri River upstream from the proposed intake at Poplar since construction of the Fort Peck Dam due to altered stream flows and reduced sediment levels. Under current operating conditions of Fort Peck Dam, it is unlikely that pallid sturgeon eggs and juvenile fish would be present in the vicinity of the proposed intake.

With proposed operational changes at Fort Peck Dam to encourage reproduction of pallid sturgeon (i.e., spring releases of larger volumes of water from the top of the reservoir), it is

possible that pallid sturgeon could find suitable spawning sites in the Missouri or Milk rivers upstream of the proposed water intake at Poplar. If this were to happen, it is possible that the current could carry larval fish downstream to Poplar, where they could be subject to entrainment into the intake.

It is uncertain where pallid sturgeon might spawn if changes in dam operation were to induce spawning. Due to the possibility of entrainment of larvae, the monitoring program outlined in the proposed action was designed to alert agencies if the project is entraining larval pallid sturgeon. If entrainment is detected, consultation would be reinitiated at that time. Therefor, the proposed project may affect, but would not be likely to adversely affect pallid sturgeon.

Piping plover

Piping plovers nest at some alkali lakes in Sheridan County (i.e., Medicine Lake -Westby-Plentywood area) that would be near the proposed pipeline system for the FPRRWS. However, no pipeline or other project facilities would directly encroach on breeding habitat (i.e., sparsely vegetated shore of alkali lake wetlands). No construction activities would destroy or affect known or potential plover nesting habitat.

Although construction activities would not directly alter piping plover nesting habitat, noise from construction could disturb nesting birds. To prevent disruption of nesting and brood rearing by noise and associated human activities, no construction activities would occur within line of sight of occupied nesting habitat during the critical time between nest initiation and fledging, which can occur between May and August. Therefor, construction of the proposed project would not likely adversely affect piping plovers, and it would not destroy nor adversely modify proposed critical habitat.

Interior Least Tern

Interior least terns nest on sandbars within the Missouri River. Pipelines for the project would not cross suitable nesting habitat for these species. No project facilities would affect habitat or pose a mortality risk to interior least terns. No construction activities would occur within line of sight of occupied nesting habitat during the critical time between nest initiation and fledging, which can occur between May and August. The project would not likely adversely affect least terns.

Bald Eagle

Migrant and wintering bald eagles might be present near the intake at Poplar; however, operational activities would pose negligible risk. There are no active nests within the project area. If an active bald eagle nest were to be found within the project area, construction guidelines in the Montana Bald Eagle Management Plan would be followed. The project would not affect bald eagles.

Whooping Crane

Pipelines and powerlines may cross habitat used by migrating whooping cranes. Because the pipeline system for the project generally parallels roads and highways, it is unlikely that disturbances from the project would differ from those currently posed by use of existing roads. Wetland and aquatic habitat would be affected only for the construction period with reclamation quickly restoring affected habitat. The proposed project would have no effect on whooping cranes.

## CUMULATIVE EFFECTS

Cumulative impacts are impacts to the environment that would result from the proposed action when added to other past, present, and future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts analyzed in this BA are the water releases from Fort Peck Reservoir proposed by the Corps of Engineers and irrigation water withdrawals from the Missouri River.

### Release of Water from Fort Peck Reservoir

Under current operation, Fort Peck Dam releases cold water from the depths of the Reservoir. This cold water, relatively free of sediment, negatively affects spawning by native fishes downriver and limits production of food and forage species. Releases of cold water low in sediment will continue to limit pallid sturgeon recruitment and may also adversely affect food supplies for bald eagles, terns, plovers, and pallid sturgeon. Current operations do not provide adequate spawning temperatures in the river below Fort Peck Dam targeted for pallid sturgeon recovery. Historically, pallid sturgeon spawned in an environment that gradually warmed in the spring to temperatures above 60F (15.6 o C). Releases of cold water from Fort Peck Dam prevent attainment of optimum spawning temperatures downstream.

Higher spring flows and warmer water temperatures are needed to improve environmental conditions for pallid sturgeon. The higher and warmer flows would provide the hydrologic cue for pallid sturgeon and other native fish to spawn. Higher flows would also redistribute sand for sandbars, inundate side channels, and connect backwater areas, providing additional nutrients, forage fish, and insects needed for larval fish, terns, and plovers.

Higher flows and warm-water releases are needed, on average, once every 3 years. The proposed Fort Peck releases would only be conducted in years of sufficient runoff and would be timed to avoid lowering the lake during the forage fish spawn (approximately mid-April to mid-May). Higher spring discharges would parallel higher spring inflows into the lake.

Peak discharges would range between 20,000 cubic feet per second (cfs) and 25,000 cfs and persist for a minimum of three days. Warm-water releases should continue for at least 30 days.

Under current conditions, pallid sturgeon do not appear to reproduce in the Missouri River downstream from Fort Peck Dam. Consequently, the proposed water intake at Poplar would not adversely affect pallid sturgeon through entrainment of eggs and larval fish. With proposed modification of operations at Fort Peck Dam to stimulate pallid sturgeon reproduction, pallid

sturgeon eggs and young fish could be carried in the current to the intake at Poplar. Thus it is possible that operation of the water intake at Poplar may adversely affect pallid sturgeon, but only if modification of operations at Fort Peck Dam successfully stimulates pallid sturgeon to reproduce in the Missouri River upstream of the proposed intake. The monitoring commitment would ensure that agencies are alerted if pallid sturgeon are adversely affected and consultation would be reinitiated.

Irrigation Intakes and Diversions

Currently there are about 700 irrigation intakes and diversions drawing water from the Missouri River between the Fort Peck Dam and the North Dakota border (Montana Department of Natural Resources and Conservation file information 2002). There are 374 claims for water rights that have been filed with the Department of Natural Resources and Conservation for this reach of the Missouri River, totaling 6,725 cubic feet per second (3 million gallons per minute). At any given time in the irrigation season, irrigators with existing water rights could divert approximately this amount from the Missouri River.

Like the proposed water intake for the FPRRWS project, these diversions have the potential to entrain larval fish, fish eggs, and plankton. Many of these intakes and diversions probably also entrain larger fish because they do not have protective devices such as small-mesh screening or low velocities at intakes to prevent uptake of larger organisms.

Under normal operating conditions, the water intake for the proposed FPRRWS would withdraw a maximum 13.1 gallons per day (9,133 gallons per minute) from the Missouri River. This would be 0.3 percent of the total diversion that could be withdrawn from the Missouri River, between Fort Peck Dam and the North Dakota border at any given time by irrigators. Impacts on aquatic biota resulting from the FPRRWS project would have a negligible cumulative effect when considered with existing irrigation impacts.

## CONCLUSION

It is the finding of this biological assessment that the construction and operation of the FPRRWS would not likely adversely affect pallid sturgeon, piping plover, and least terns. The project would not affect bald eagles or whooping cranes, and it would not result in the destruction or adverse modification of proposed critical habitat for piping plover.

## LITERATURE CITED

Berglund, J. 1997. Biological resources report for Montana Department of Transportation Project 1-9(30)565, Control #1739 Frazer East and West. Montana Department of Transportation. Helena, Montana.

Butts, T. 1995. Wildlife habitats and proposed wildlife studies for the F. Neil Smith gas-fired cogeneration plant Wolf Point, Montana. Continental Divide Wildlife Consulting. Helena, Montana.

Carlson, D., W. Pflieger, L. Trial, and P. Haverland. 1985. Distribution, biology, and hybridization of Scaphirhynchus albus and S. platorhynchus in the Missouri and Mississippi Rivers. Environmental Biology of Fishes. 14:51-59.

Gardner,W.1994. Missouri River pallid sturgeon inventory. Montana Department of Fish, Wildlife, and Parks. Fed.Aid. Project F-46.

Hansen, P., R. Pfister, K. Boggs, B. Cook, J. Joy, and D. Hinckley. 1995. Classification and management of Montana's riparian and wetland sites. Montana Forest and Conservation Experiment Station, University of Montana, Missoula, Montana. Misc. Pub. No. 54.

Krentz, S. 1997. Summary report of work conducted by the Missouri River FWMAO on Missouri and Yellowstone Rivers - Pallid sturgeon Report MRFA 097-03, U.S.F.W.S., Bismarck, North Dakota.

Liebelt, J.1998. Lower Missouri River and Yellowstone River pallid sturgeon study. Western Area Power Administration. Grant 94-BAO-709. Montana Department of Fish, Wildlife, and Parks, Fort Peck Montana.

Payne, G. 1973. Vegetative rangeland types in Montana. Montana Agricultural Experiment Station. Bozeman, Montana.

Reel, S. L. Schassberger, and W. Ruediger. 1989. Caring for our natural community: Region 1 - Threatened, endangered, and sensitive species program. USDA Forest Service. Missoula, Montana.

Reichel, J. and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Outdoors May/June. Helena, Montana.

Ryckman, F. 1995. Paddlefish snagger creel and incidental sturgeon snagging survey. In: Proceedings of the first joint meeting of the Montana/North Dakota pallid workgroup and the fluvial arctic grayling workgroup. Montana Department of Fish, Wildlife, and Parks. Helena, Montana.

Scarnecchia, D., P. Stewart, and L. Ryckman. 1994. Management plan for the paddlefish stocks in the Yellowstone River, Upper Missouri River, and Lake Sakakawea. Montana Department of Fish, Wildlife, and Parks, University of Idaho.

Stebbins, R. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston.

Sumner, J. 1995. Peregrine falcon survey on four Montana Indian Reservations. Craighead Wildlife-Wildlands Institute. Missoula, Montana.

Tews, A. 1994. Pallid sturgeon and shovelnose sturgeon in the Missouri River from Fort Peck Dam to Lake Sakakawea and in the Yellowstone from Intake to its mouth. Montana Department of Fish, Wildlife and Parks. Helena, Montana.

U.S. Army Corps of Engineers. 2001. Missouri River master water control manual review revised draft environmental impact statement. Omaha, Nebraska.
U.S. Department of the Interior (USDI). 2001. Biological assessment – Operations of the Lower Yellowstone Project, Intake, Montana, including proposed modifications. Billings, Montana.

U.S. Fish and Wildlife Service (USFWS). 1993. Recovery plan for the pallid sturgeon. USFWS, Bismarck, North Dakota.

U.S. Fish and Wildlife Service (USFWS). 2000a. Biological opinion on operation of the Missouri River mainstem reservoir system. USFWS, Bismarck, North Dakota.

U.S. Fish and Wildlife Service (USFWS). 2000b. Estimated drift speed of larval sturgeon. Technical Notes. USFWS Missouri River Wildlife Management Assistance Office, Bismarck, North Dakota.